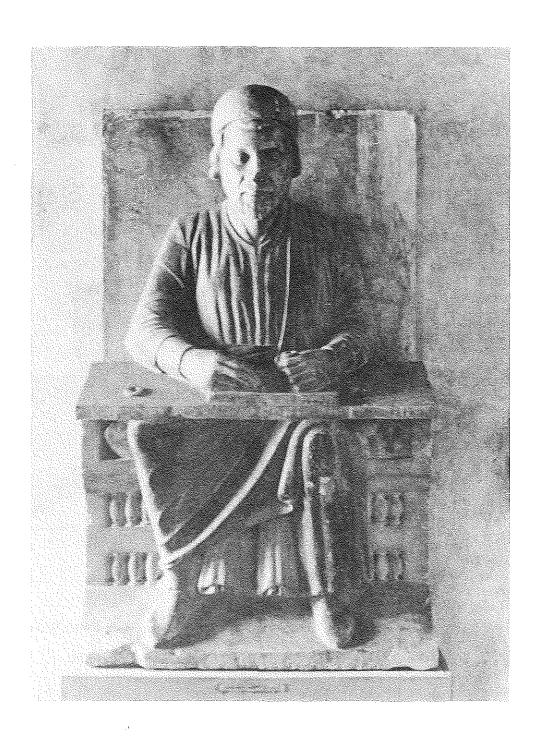


THE COLLEGE

St. John's College Annapolis, Maryland Santa Fe, New Mexico



December 1970

The College

Cover: Statue of Virgil, by Benedetto Antelami (?), Mantua, Palazzo Ducale, ca. 1215. Inside Front Cover: McDowell Hall, Annapolis.

The College is a publication for friends of St. John's College and for those who might become friends of the College, if they came to know it. Our aim is to indicate, within the limitations of the magazine form, why, in our opinion, St. John's comes closer than any other college in the nation to being what a college should be.

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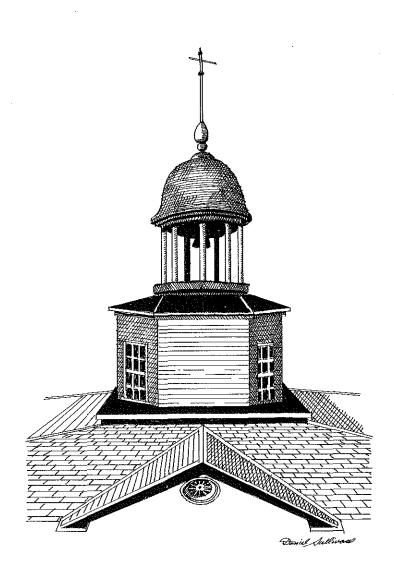
If ever well-placed beacon lights were needed by American education it is now. By publishing articles about the work of the College, articles reflecting the distinctive life of the mind that is the College, we hope to add a watt or two to the beacon light that is St. John's.

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Vol. XXII December 1970 No. 4



In the December Issue:

Reflections on the Idea of Science, by Curtis Wilson
The Myth of Virgil's Aeneid, by Jacob Klein1
News on the Campuses
Alumni Activities 2

Reflections on the Idea of Science*

By CURTIS WILSON

We and our world stand within the unity of an encompassing history, a vast culture or set of traditions, inherited techniques and patterns of behavior, interlocking and diverging patterns of transmitted thought. And perhaps the mightiest of these traditions today is that which we call "science." Its effects are omnipresent. It has transformed, and continues to transform, at an ever accelerating rate, the visible world around us as well as the routine of our lives. It has made possible the extinction of man and his culture in a universal holocaust; and it has presented, for the first time in the history of the human species, the possibility of banishing material want from the face of the earth.

All this is journalistic commonplace, and the actual or possible material effects of science are not my concern here. These effects testify, of course, to a certain kind of success of the on-going tradition of modern science, and this success brings with it a certain claim. When I set out to think in the attitude of one who seeks to arrive at truth and to avoid falsehood, this claim appears upon the horizon of my thought, whether invited or not. It is the claim of the objectivity of science. Whether I choose to welcome this spectre as a friend, or to duel with him as an enemy, or even to dismiss him as irrelevant to my concerns, his appearance, I believe, will not have been without lasting effect upon my thought. For as participant in a particular culture at a particular time-and every human being is that—I do not find it possible to determine my thought just as I please; problems, and the terms in which they are couched, are presented. And we cannot set out to think in our time without being confronted with the claim upon our thought of scientific objectivity. It seems best, therefore, to attempt to question this spectre, to try to elicit the meaning of his presence.

Why do I say "spectre"? Surely there is nothing ghostly or frightening about scientific objectivity. Here is a realm of light. We are out of the dust of metaphysical disputation. Superstition and prejudice have been left behind.

"Objectivity," however, is a polar term; it evokes its contrary or opposite, "subjectivity"; it has its meaning in relation to the meaning of this second term. I should mention that the use of the terms "subject" and "object" which is involved here is relatively recent. In the thirteenth century the use of these terms in philosophic discourse was almost opposite to the present-day use; "subject," from subjicio, to place or throw under, could mean a thing as a sustainer of properties and attributes, something so to speak "thrown under" the qualities of the thing; "object," from objicio, to place or throw before or opposite one, normally meant the concept intended by the mind. The present-day use appears to derive from a particular setting of problems in modern philosophic thought, beginning with Descartes's assumption that what exists must either be a thinking thing, res cogitans, or an extended thing, res extensa. Particularly since Kant, the words "subject" and "object" have been the key terms of a complicated and sometimes acrimonious dialectic. Kierkegaard says: "Subjectivity is the truth." The theologian Berdyaev says: "The self-alienation of spirit in objectivity is a fall." The psychoanalyst Theodore Reik speaks of the bitchgoddess objectivity. He suggests that there is an historical connection between the most elevated passion or thirst for knowledge and the desire to devour something; this hypothesis, he adds, will explain why people open their mouths when surprised.

What is at issue here? Clearly the terms "subjectivity" and "objectivity" are being used as firearms; they are, as we say, "loaded terms." Is not this opposition basically the one of which C.P. Snow complains?—the splitting of the intellectual life of western society into two polar groups, between which there is a gulf of mutual incomprehension and even hostility—those typified as literary intellectuals

Rigorous standards of procedure are upheld; results are arrived at which are reproducible with a known order of precision. Should a mistaken assumption be made, it will surely be found to be such, for there is a constant reference to observation and experiment, to reality. We gain the image here of a machine which functions smoothly, dispassionately, according to rules of operation which are clearly set forth once and for all. As its product we obtain universally established, objective truths.

^{*} A lecture given at St. John's College, Annapolis, in September, 1961.

on the one hand, those called scientists on the other. "The non-scientists," Snow says,

have a rooted impression that the scientists are shallowly optimistic, unaware of man's condition. The scientists believe that the literary intellectuals are totally lacking foresight, peculiarly unconcerned with their brother man, in a deep sense anti-intellectual, anxious to restrict art and thought to the existential moment.

It is not hard, Snow adds, to produce plenty of this kind of subterranean backchat.

It is my purpose here, not to rehearse the debate, but to try to specify more exactly the notion of scientific objectivity, which I have called a ghost, and then to compare this notion with what I believe to be the actualities of scientific practice.

When we think or speak of scientific objectivity, I believe we are evoking a kind of mosaic of meanings, different components of which will be in the foreground of our attention in different contexts of discussion. I believe I can distinguish the following components. First, we are thinking of science as empirical, as based on observation of what we call facts. We are thinking of science as a set of statements which is "objective" in the sense that its substance, its essential content, is entirely determined by observation, even though its presentation may be shaped by convention. Second, we are thinking of science as a set of techniques, exact methods for establishing control over experience. We are thinking that there is something called scientific method, a set of precise rules for proceeding which can be formally set out and empirically tested. The scientist has only to follow the rules faithfully in order to arrive at reliable results. Third, we are thinking of science as proposing a certain type of explanation as the only proper and final kind of explanation; roughly speaking, a physico-chemical explanation of all things, including living and thinking beings.

I shall take up the three components one by one. It will be clear enough that I regard these assertions embedded in the notions of scientific objectivity as false and misleading; but there is a central and important element in the notion which I shall seek to disengage in the end. I begin with the notion of science as *empirical*, as determined in its essential content by observation.

Kirchhoff, the nineteenth-century physicist, said that science is ultimately concerned with nothing else than a precise and conscientious description of what has been perceived through the senses. Suppose now that a man devotes his entire adult life to writing down in notebooks a precise and conscientious description of what he perceives through the senses; when his life approaches its close, he forwards these notebooks to the National Academy of Sciences. It will not be merely because of bureaucratic inefficiency that these notebooks are never read by anyone,

and end in the discard.

Yes, of course, you say, a selection has to be made; the observations have to be sorted. In order that knowledge should arise from sense experience, you must abstract or separate certain aspects from the different perceptions, associate similar aspects in order to form general ideas, and correlate those aspects which are constantly conjoined.

I counter with a question: What do you mean here by "observation" or "sense-perception"? Am I supposed to be thinking of myself as a blind computer harnessed to a brainless photoplate? Consider the following passage from Duhem's La theorie physique (p. 218):

Enter a laboratory; approach the table crowded with an assortment of apparatus, an electric cell, silk-covered copper wire, small cups of mercury, spools of wire, a mirror mounted on an iron bar; the experimenter is inserting into small openings the metal ends of ebony-headed pins; the iron oscillates, and the mirror attached to it throws a luminous band upon a celluloid scale; the forward-backward motion of this spot enables the physicist to observe the minute oscillations of the iron bar. But ask him what he is doing. Will he answer "I am studying the oscillations of the iron bar which carries a mirror"? No, he will say that he is measuring the electric resistance of the spools. If you are astonished, if you ask him what his words mean, what relation they have with the phenomena he has been observing and which you have noted at the same time as he, he will answer that your question requires a long explanation and that you should take a course in electricity.

Is it altogether clear that the visitor sees the same thing as the physicist? Consider the following cases. A musician listening to a quintet hears that the oboe is out of tune; the non-musician does not. Or a Westerner and a Far-Easterner listen, both for the first time, to a Mozart concerto. For the one there is a perception of form, for the other there is confusing, unadulterated pure sound. For the experienced listener, the interpretation is there in the music; it is not something taking up a time of its own, subsequent to the hearing.

The same goes for seeing. I see a bird in the air; my seeing takes him in as a being that has just been flying and that will continue in the arc of his flight. Or compare the way in which the freshmen see the College campus with the way it appears to his ancient Tutor.

Seeing, hearing, perceiving are through and through interpretative; only in a limiting case, maybe in the case of a newborn babe, or a person fainting, does observation become an encounter with unfamiliar and unconnected flashes, spots of color, sounds, bumps. A physicist confronted with observations which he could describe only in terms of color patches, shapes, oscillations, pointer read-



ings, would feel himself to be in a conceptually confused situation; he would try to get his observations to cohere against a background of established knowledge. It is in terms of a perceiving in which the elements already cohere in a pattern and interpretation that new inquiry proceeds, and not in terms of an encounter with pure flashes, sounds and bumps. Physicists observe new data as physicists, and not as cameras.

What I have been saying argues against the view that observation is simply opening one's eyes and seeing, or that facts are plain and unvarnished, and not laden with theory. But I want to go further. Observation, measurement, experimental result-all these have had their roles in the development of what we call modern science. These roles have not been the same as the role of experience in, say, theological speculation-where, by the way, experience does have a role; for I do not think that we can make any statement at all which does not have roots of some kind in our experience of the visible, sounding world. But the question is how we are to describe the relation of theory and fact in the modern scientific development; and I maintain that we do not describe that relation correctly if we say that theories are merely convenient summaries of experience, or economic adaptations of thought to facts, or logical constructions whose sole purpose is to predict what will be observed. I do not even believe that it is correct to say that validity or rightness of a theory can be simply judged by the degree to which it is confirmed by experiment, or that a theory is automatically discarded when experiment fails to confirm it. The rightness or wrongness of these statements that I make can only be determined through a close examination of the ways in which scientific speculation and experimentation have proceeded in actual, particular cases; I can only give a few indications here. I take physical science as paradigmatic, and avoid the social sciences where the maxim often seems to be: If you cannot measure, measure anyhow.

In the development of modern physics one has to distinguish the great theoretical achievements, or times of theoretical break-through, from the mopping-up exercises which follow. Textbooks of physical science tend to give the following picture. First a theory is proposed. Then there is a certain amount of logical and mathematical equipment, a kind of machine, used in manipulating the theory; the theoretical assumptions are fed into this machine along with certain initial conditions specifying the situation to which the theory is to be applied, the crank is turned; logical and mathematical operations are internally performed, and numerical predictions emerge from the chute at the front of the machine. These predictions are arranged in the left-hand column of a table; in the right-hand column appear the results of actual measurements. If the numbers in the two columns are in reasonable agreement, the theory is said to be confirmed; otherwise, it is disconfirmed.

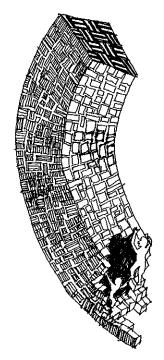
We must first ask: what is meant by "reasonable agreement"? Is an average deviation of three per cent acceptable, is ten per cent good enough, or should we insist on 0.001 per cent? These questions cannot be decided a priori, independently of the total theoretical background within which the physicist works in each case. In effect, the tables in the textbooks define what is meant by reasonable agreement in the case which is being described.

In the second place, we must examine what physicists do in the period following the proposal of a new and encompassing theory. Are they engaged in attempting to confirm the theory by experiment? If so, then a failure to obtain agreement between theoretical prediction and actual measurement should lead to discarding the theory. Nothing of the sort happens. In general, a theory is not discarded unless there is another theory to replace it. In general, the theory has already been accepted; it has been accepted because it brings potential order to a large number of natural phenomena. Finer and finer investigations of the quantitative match between theory and observation are not attempts to confirm the theory, but attempts to make explicit what was previously implicit agreement between theory and the world. Again and again, nature's hand has to be forced. If the physicist succeeds in achieving reasonable agreement between theory and observation, he achieves a result already anticipated by the general community of physicists. If he fails, his failure counts not against the theory, but against himself; his talents have not proved equal to the task.

In 1638 Galileo published his description of the famous inclined plane experiment. He claimed that comparisons of the times required by a sphere to roll different measured distances down the plane confirmed his prior thesis that the motion was uniformly accelerated; he did not report his measurements. Subsequently a group of well-known scientists in France announced their total failure to get comparable results, and publicly doubted that

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Galileo ever tried the experiment. Presumably Galileo did perform the experiment; presumably he got results which appeared to him to be reasonable agreement with his hypothesis. Anyone who has performed this experiment with a present-day electric timer or stop-watch may doubt that Galileo's results were in anything like unequivocal agreement with the hypothesis. But for the development of physics this did not particularly matter. What mattered was that there should appear a detective like Newton, who, taking as clues such apparently unnoticed unrelated items as Galileo's thesis, Kepler's laws for the planets, observations of the lunar tides, and precession of the equinoxes, and so on, could produce a coherent pattern of intelligibility, a rational structure of potential explanatory power. The coherence and rationality of such a pattern is recognized precisely when one understands the theory, and not otherwise; there is a quality of wholeness there, an interlocking of parts in the theoretical structure, which commands the assent of the mind. And there is also an indeterminate range of yet unknown implications which later investigators will be years in ferreting out and trying to realize in experimental situations.

In the years between 1902 and 1926, D. C. Miller repeated the Michelson-Morley experiment many thousands of times, in an effort to disconfirm the theory of relativity. The Michelson-Morley experiment, you know, is generally described as having shown that the velocity of the earth with respect to the ether is indetectible. (The ether is, or was, the medium hypothesized as carrying electromagnetic vibration—radio waves, light waves, and so on.) Actually the experiment detected a positive effect, corresponding to a velocity of about eight or nine kilometers per second.

This is considerably less than a pre-Einsteinian physicist, believing in absolute space, would have predicted; but it is not zero. In 1925, Miller announced that the whole series of his experiments confirmed overwhelmingly the existence of a positive effect of about eight or nine kilometers per second. Miller was known to be a careful experimentalist. One would have supposed that the theory of relativity would be instantly abandoned, or at least that physicists would have withheld judgment until Miller's results could be accounted for without impairing the theory of relativity. Nothing of the kind. Only in Russia were Miller's results taken as casting doubt on the theory, and there the theory of relativity had not been accepted as yet anyway, since it was believed to be in conflict with the dialectical materialism of Engels and Lenin, and no material benefits seemed to flow from it. For physicists elsewhere, however, the theory of relativity continued to command belief for the reasons which had led to its original acceptance: it provided a coherent vision of laws, theories, facts, which had previously appeared disparate, rationally unconnected. There is still no generally agreed-upon interpretation of Miller's result; but the indetectibility of the earth's motion relative to the ether has been shown experimentally in ways quite independent of the Michelson-Morley apparatus.

According to Einstein himself, and contrary to most textbook accounts, contrary even to certain implications in the St. John's manual on this subject, the Michelson-Morley experiment played no role in the formulation of relativity theory. Einstein was concerned fundamentally with certain anomalies in the theory of electrodynamics. For instance, he felt that when a magnet is moved relative

to an electrical conductor, or a conductor relative to a magnet, the situation was fundamentally the same, and should be determined by the relative velocity alone; whereas Maxwell's electrodynamics gave different accounts of the two cases.

It is sometimes alleged that Einstein's motive was to eliminate untestable conceptions from theory, for instance, the notion of absolute space. Such conceptions, it is urged, are meaningless. This assertion is an attempt to assimilate Einstein's work to the notion of science as economic description. Actually, the Newtonian conception of space was not untestable; Einstein showed not that it was meaningless but that it was false.

What I am urging here is that the great and revolutionary theories of physics-and the number of these has not been large—have all possessed qualities of wholeness and coherence, intellectual beauties and harmonies and profundities, and that it is by these qualities that the theories have laid claim to truth. Observations and experimental results function as clues; but the theories transcend such experience by embracing a vision of the world. This vision speaks for itself and as such becomes accredited with prophetic powers. This view of the nature of physics will be confirmed, I believe, by a study of the major theoretical achievements from Copernicus to Einstein. Nor does the newer quantum mechanics deny it, so far as I can tell from a slight acquaintance. Unlike previous theories, it is peculiarly concerned with the processes involved in observation itself; but I do not find that it is a convenient or economical summary of experimental results. It requires of the physicist startlingly new ways of thinking about the world. Every one of the major theories has done just that-changed the framework of interpretation. And it is just for this reason that such major discoveries cannot be arrived at by continued application of a previously accepted framework of interpretation.

This brings me to the second component of the notion of scientific objectivity which I have distinguished: the conception of science as method. Let me begin by considering the subject of methods generally. We are all able to do many things. We walk, talk, and eat with fork and spoon. All these actions involve sets of skills, or arts. What is an art or skill?

Consider a simple case like this: the use of a hammer to drive a nail. The carpenter is aware of both the nail and the hammer, but it is the nail which occupies the focus of his attention. He watches the effect of his strokes, and wields the hammer in such a way as to hit the nail effectively. He is aware in a subsidiary way of the feeling in his fingers and hand: even more dimly, he may be aware of the contractions in the muscles of his arm and shoulder, and of his whole bodily posture. But these feelings are not the object of his attention; they are not watched in themselves. The subsidiary awareness is merged into a focal awareness of driving the nail. The adjustments in hand

and arm and body are instrumental in achieving an end; the hammer is used as a tool, an extension of the body. By the effort of concentration on the operation to be performed, the successful nail-driver absorbs, one might say, the elements of the situation of which he might otherwise be aware in themselves; he is aware of them only in terms of the operational results achieved through their use. He is no doubt following here a complex set of rules; but he is not aware of these rules as such.

The same thing, I believe, is true of every skilled performance. The process of bicycling can be analyzed in accordance with the theory of mechanics. It is found that when the cyclist starts falling to the right, he turns the handlebars to the right, so that the bicycle moves along a curve to the right. This action results in a centrifugal force which pushes the cyclist to the left and offsets the gravitational force which is dragging him down to the right. This maneuver soon has the effect of throwing the cyclist out of balance to the left, a lack of balance which he counteracts by turning the handlebars to the left; and so he keeps in balance by winding along a series of appropriate curves. An analysis in terms of Proposition IV of Book I of Newton's Principia shows that for a given angle of unbalance the radius of the curve must be inversely proportional to the square of the cyclist's speed. The cyclist, of course, knows nothing of all this; nor would such information be useful in learning to ride. In any skilled performance there are countless rules which are observed but of which the performer is unaware.

An art or skill is a set of potentialities which is brought into play in the accomplishment of an end. The elements of the successful performance are merged in a focal awareness of the end. Bringing one of these elements into awareness may be occasionally helpful in improving performance; but focal awareness of the elements, if maintained, is destructive of the skill, and leads to a paralysis like stage-fright.

It may indeed be possible to analyze every aspect of a skilled performance; and it will then be possible to re-place the performer by a machine. The studies of the industrial arts made in preparation for mechanization have repeatedly shown that such analysis is enormously difficult. The resources of microscopy, chemistry, mathematics, and electronics have as yet failed pathetically to produce a single violin of the quality which Stradivarius achieved as a matter of routine 200 years ago. Even in modern industries based on the discoveries of pure science there is a considerable amount of undefined knowledge or knowhow which forms an essential part of the technology. Hence the importance of imitation in learning a skill; the apprentice has to submit himself to the authority and example of the master; he thus learns to obey rules of which he is not focally aware and which may not even be explicitly known to the master himself. An unbroken tradition, from generation to generation, is essential here.

I want to apply these conclusions now to the cognitive or intellectual arts, the arts not of doing but of knowing. Let me begin with the arts of language; it is the possession of these arts which distinguishes man from the other animals; and it is their exercise which has made possible the constant extension of human knowledge on the basis of previously achieved results.

A language is no doubt a construction, the product of the activity of generations of human beings belonging to a given society. The ready use of nouns, verbs, adjectives, which have been invented and endowed with meaning by unknown men of the past, expresses a theory of the nature of things. Every child who learns to speak accepts unwittingly this theory or framework as the basis for all further efforts of understanding.

There is a prevalent view that language is a set of convenient symbols used according to conventional rules of a "language game." Likewise, the nominalistic doctrine which was put forward in medieval times and is still with us, maintains that general terms are merely names designating certain collections of objects. The implication is that a language is essentially arbitrary and unrelated to the way things are. This view is adopted in abhorrence of its metaphysical alternatives.

On the contrary, I think that we can appraise skill and lack of skill in the use of words. I am sometimes aware of groping for words and phrases, and I recognize that something is awry when I get the wrong one. A skilled artist in speech is thoroughly conscious of the figurative and metaphorical elements in speech. He continues to correct and supplement one metaphor by another, even allowing contradictions to enter at times, but always attending focally to the unity of his thought. In skillful speech, there is only a subsidiary awareness of words; one sees through the words to things; attention is focused on the object of the thought. This characteristic has been called the transparency of language.

Every situation to which speech is applied is to some extent unprecedented. In the adaptation of speech to new situations, there is a focal awareness of the situation of which we wish to make sense, and a subsidiary awareness of the words we are using as instruments. In this process the meanings of words become modified, but we are not focally aware of this change. Our framework of interpretation thus changes, and the words for which we grope become invested with a fund of unspecifiable connotations.

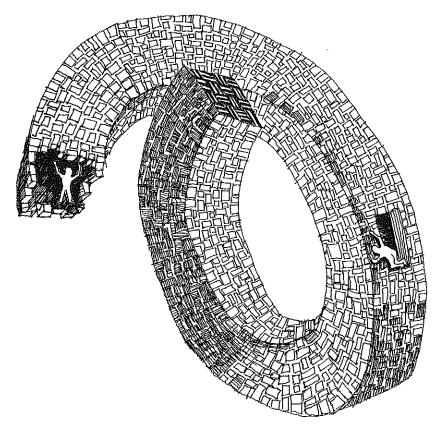
What I have just said applies not only to the education of a single person, but to the development of the language of a whole society. The efforts of men to adapt language to situations and things have the result, after years and centuries and millennia, of modifying the instrument of interpretation itself. Some of the changes are degenerative; but words which have great human significance tend to accumulate a wealth of connotations adapted to the situations in which they have been meaningfully applied. It is

because of this fact that when we speak we say more than we know; that language seems to have a wisdom of its own. And it is also because of this fact that inquiries of the Socratic type are worthwhile. We have the power to take cognizance of a subsidiary element in the comprehension of a term, say "justice" or "courage"; we can try to define the term. Such an enterprise presupposes an understanding of the subject-matter to which the term refers. Only if we are confident that we can identify what is just or courageous in particular cases, can we reasonably undertake to define the term. If we want to analyze the meaning of the term, we must be using it as thoughtfully as we can, and at the same time watch ourselves doing this. We must look, with all the discrimination we can bring to bear, through the term "justice" at justice itself; for this is the use we are trying to define.

I am urging, then, that the skills of using a language are like other skills; that the employment of linguistic skill involves the merging of a subsidiary awareness of words and grammer in a focal awarenes of an end, say persuading someone of something, or expressing a truth. The process depends on a fund of unspecified connections and connotations which constitute a framework or instrument of potential explanation. Any attempt to step altogether outside this framework and to criticize the structure of language as wholly arbitrary and conventional, is lacking in frankness; for the attempt employs and appeals to the very instrument whose validity it denies. Language commits us, far beyond our comprehension, to a vision of the world. It is a shirt of flame in which we are garmented; the responsibility of wearing it we cannot avoid.

The view I am advocating would deny that there is a single scientific method, or method of achieving truth, the rules of which can be set down once and for all. I do not deny that there are methods (plural) which have been developed in the particular sciences, and which continue to be applied effectively in a variety of situations. But formulations of these techniques, even by a competent scientist, tend to be inadequate because the scientist automatically supplements the explicit formulation by a tacit knowledge of how the techniques are applied in particular cases.

As an illustration of the way in which tacit appraisals are involved in the use of a given technique, let me mention the application of probability theory. This theory is applicable to systems of objects and events which have a characteristic called randomness, and also to significantly ordered systems which interact with random systems. "Randomness" means the absence of significant order or pattern; "significant order," of course, means absence of randomness. The randomness of a system cannot be specified in terms of the particular elements of the system; such specification, if it were possible, would in fact destroy the randomness. The appraisal of a system as random or as orderly depends on tenuous criteria peculiar to the system



under consideration, and cannot be reduced to universal rules. This becomes evident when probability theory is applied to a live scientific issue; in such cases there may be intense controversy over the proper experimental design and statistical technique.

If we turn to the deductive or mathematical aspects of the science, I believe we shall find again the same supremacy of art over mechanical procedure. The teaching of all the mathematical sciences such as mechanics or electromagnetic theory relies to a large extent on practice in solving problems. The skill striven for in all these cases is that of converting a language which one has assimilated only receptively into an active tool for answering new questions. The rules for problem-solving that can be specified are but vague maxims: Polya, in his book, How To Solve It, says "Look at the end. Remember your aim. Do not lose sight of what is required . . . Look at the unknown." In attempting to solve a problem we use the known particulars as clues, and try to feel our way toward an understanding of the manner in which these known particulars relate with each other and with the unknown which is sought. To recognize the problem in the first place means to anticipate a hidden potentiality. As we proceed in tracing out relations and in trying various transpositions of symbols, we may at a certain moment feel that we are getting close; we sense-not without excitement-the accessibility of a hidden inference. Finding the solution is having a "happy thought"; it is crossing a logical gap. The solution of further problems of the same kind may increase our facility. In some cases we may discover a routine technique for dealing with all problems of a given class; such problems are no longer problems. The recognition of a genuine problem, and the solving of it, are acts which are not reducible to mechanical or systematic technique.

That genuine discovery is not in principle capable of being dispensed with in the deductive disciplines has been shown as a result of research in metamathematics, the study of the formal properties of mathematical systems. In some such systems, a decision procedure is available, a finite sequence of predetermined operations which suffices to resolve every question or problem that can be set in the terms of the system. Reckoning of sums, differences, products, and quotients of numbers is of this character. There are other systems in which a decision procedure is available for deciding whether a given sequence of statements constitutes a proof of a given statement, but in which there is no decision procedure which would enable one to decide, in a finite number of steps, whether a given statement couched in the terms of the system is provable or not—is a theorem or not. In these cases a machine can be built which, by operating on the axioms according to specified rules of inference, will churn out theorems, one after another; but there can be no guarantee that it will turn out in a given finite time the answer to any particular question. The determination as to whether a given statement in the language of science is deducible or not is contingent on time, luck, ingenuity, and intelligence directed toward a goal. Euclid's geometry is of this character. We may speak of a primordial darkness of reason here; we are unable to envisage the total outcome of a series of acts whose generating principle we can envisage with complete clarity.

There is still a further kind of situation in the deductive sciences, discovered by Goedel in 1931. Within any deductive science of sufficient scope to include arithmetic, it is possible to formulate sentences which cannot be proved within the science, that is, starting from the stated axioms of the science and employing the stipulated rules of inference, but which can nevertheless be shown to be true by reflections on the science as a whole. In 1949 Turing showed that a machine could be devised which would construct and assert as new axioms an indefinite sequence of these Goedelian sentences, as they are called. It nevertheless remains true that any given set of mathematical inference machines can only cut a swathe out of the total field of mathematical truths. Mathematics cannot be formalized, once and for all, in a single linear deductive development; the methods of procedure and inference in mathematics are, in principle, inexhaustible.

What I am saying here, in sum, is that no fixed, impersonal, and fully specified technique can be laid down for attaining all and only the truth. The knowledge we have or gain is shaped within a framework of tacit acceptance and incompletely specificable arts which are logically prior to any particular assertion we may make. Such a framework can be altered, or as I would say, improved, in the very process of examining a topic in its light. Either this is so, or liberal education is nonsensical. My acceptance of one of these alternatives rather than the other is no doubt a passionate act, a commitment.

I turn now to the third claim associated with the notion of scientific objectivity, roughly speaking, the claim that only explanations based on physics and chemistry can be accredited as final in the sciences. Huyghens, in his Treatise on Light of 1678, speaks of "the true Philosophy, in which one conceives the causes of all natural effects in terms of mechanical motions." Laplace, in his Treatise on Probability of 1814, writes than an intelligence which knew at one moment of time

all the forces by which nature is animated and the respective positions of the entities which compose it . . . would embrace in the same formula the movements of the largest bodies in the universe and those of the lightest atom: nothing would be uncertain for it, and the future, like the past, would be present to its eyes.

Such a mind, Laplace claims, would possess a complete scientific knowledge of the universe. K. S. Lashley, speaking in 1948 at a symposium on cerebral mechanisms in behavior, states:

Our common meeting ground is the faith to

which we all subscribe, I believe, that the phenomena of behavior and of mind are ultimately describable in the concepts of the mathematical and physical sciences.

With these views I believe it is necessary to do battle. For they present us with a picture of the universe in which we ourselves are absent, in which there are no scientists and hence no science. This is a simple-minded objection. I would support it and amplify it by the following considerations, which will have to be brief.

Suppose, first, that the universal knowledge of which Laplace dreamed were possible. Then from the positions and velocities of the n atoms or particles of the world at a given time t1, it would be possible to compute the positions and velocities of all these particles at any later or earlier time t2. As it turns out, if n is greater than two, no exact and general solution of the computational problem is possible. But even if it were, it would remain true that this knowledge would not constitute knowledge of all past and future events, unless "event" be defined in so narrow a fashion as to exclude the events of which I have experience. The Laplacean picture supplies no clue as to how the data of experience are to be accounted for, how I am to pass from information about atoms to data of experience. It merely claims, wrongly as it turns out, that an answer is possible to a question raised by the theory of mechanics itself. The change from Newtonian to quantum mechanics makes no difference in this argument. The wave equation of the world in quantum mechanics represents our ultimate knowledge of all the particles in the world, leaving open within this framework only variations which are strictly random. There is no accounting here for living beings or for intelligent behavior.

Computing machines and feedback mechanisms, as is well known today, can simulate or improve upon the behavior of living and thinking beings. But here again I must point to a very obvious fact, which is nevertheless often forgotten: No knowledge of physics or chemistry would ever suffice to enable us to recognize or account for a machine. A machine, for instance a clock, a steam engine, or a digital computer, is an instrument or implement which is operated in accordance with certain more or less specifiable rules for the sake of a certain advantage. Of instruments, operational rules, and advantages, physics and chemistry can tell us nothing. Suppose you are confronted with a problematic object and try to explore its nature by a physical and chemical analysis of its parts. A complete physical and chemical account of the object, and of all its future possible transformations, would still not enable you to discover that it is a machine, if it is one, and if so, how it operates. Such a discovery could only be made by testing the object as a possible instance of known or conceivable machines. For you must know that the problematic object embodies a rule of rightness, or operational rule; that it can succeed or fail, depending on whether it



operates in accordance with this rule or not. In the subject matter of physics and chemistry proper, the notions of success and failure do not occur. Given the rule of rightness, the physicist and chemist may be able to find the causes of a failure of the machine, or the material conditions under which it will operate successfully; but the reasons for the consecutive stage of operations of the machine, and for the ways in which its parts are coordinated, are not specifiable in physico-chemical terms. The relation between reasons and physico-chemical causes or conditions is like the relation between logical rules and psychological explanations as applied to processes of thought. A given sequence of thought may be started by appetite or intellectual passion; it may depend on memory, visual imagination, and verbal or other symbolism. But a psychological analysis of these conditions will never reveal whether the sequence of thought embodies a correct inference or not.

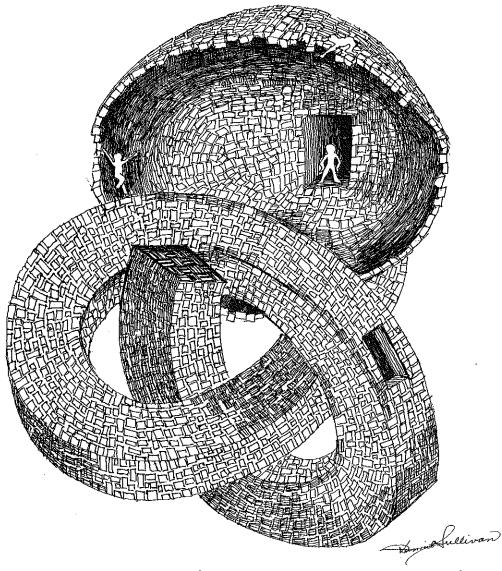
The thesis that all living beings are physico-chemical automata, the operations of which are in principle totally specifiable in terms of spatio-temporal determinations, is not strictly inconceivable. It forms a closed interpretative system which is passionately pursued by a whole school

of geneticists and neurologists today. The fact that most non-psychopathic persons become morally indignant when treated as automata might be said to be due to primitive patterns of mentality that a perfect scientific knowledge would eliminate.

There are, of course, many biological phenomena which have thus far resisted reduction to physico-chemical or spatio-chemical terms. These include the powers of improvisation discovered by Driesch in embryonic fragments, and the powers of adaptive reorganization exhibited by many animals in the achievement of a predetermined end under profoundly modified conditions. Thus a rat which has learned to run a maze will continue to find his way through it after the neural paths used in learning have been cut, although he has to employ quite different patterns of locomotion. All along the evolutionary scale of life, there is evidence for the presence of active centers which act inventively in ways which are not fully specifiable in physico-chemical terms. It can always be claimed, of course, that further knowledge will enable us to explain such evidence away.

These particular and no doubt intricate issues within the biological sciences I cannot follow up here. My central

The College



point is that if man is himself regarded only in his factuality, only as a complex object which is in principle specifiable in physico-chemical terms, then the very idea of science becomes unintelligible. I can no longer accredit myself with the responsibility for drawing an ever indeterminate knowledge from unspecifiable clues with an aim to universal validity; nor can I acknowledge other persons as responsible centers of equally unspecifiable operations, aiming likewise at universal validity. In the resulting image of the world and of man there is no longer room for the norms and ideas of reason. Thus western man, who since the sixth century B.C., has defined himself by the idea of reason, as animal rationale, loses sight of himself. Reason, through a partial realization of its goal in modern science, appears to betray itself.

This is the primary root, I believe, of the intellectual crisis of our time.

Let me recur here to the fact with which I began. What we call science is at any moment, and for anyone, a part

of an inherited culture, a set of techniques and patterns of thought which have been cultivated and transmitted, and which as such must have arisen, must have had origins, in human activity. Thus science has a history.

This fact would be of little import if the past of science or of any cultural configuration were merely behind and extraneous to its present. But surely this supposition is false. For do we not know that the historical present comes out of the historical past, and contains this derivation implicitly in itself? Is it not so in the case of languages, customs, laws, and indeed of every cultural achievement? And does not this fact point to a possibility—the possibility that tradition may allow itself to be questioned; that it is not necessary merely to live within a tradition, accepting it as a matter of course, or to set oneself up blindly as nihilist, rejecting traditions which have formed us?

To follow up this line of inquiry in the case of the sciences is to refer scientific knowledge to the generating

and producing activities of the mind; it is to attempt to discern how objective science came to be, how it must have stepped into history as a human production. The history which is in question here is not primarily factual history; and indeed the factual origins of the idea of objective science are irrecoverably lost. The concern is rather with general and necessary truths about the way in which this idea came to be there for human beings; and these truths are implicit in the mode of being of science in the living present.

Do we not know, for instance, this simple truth that science is transmitted from generation to generation, from teacher to learner, and that at the same time it is continually broadened, with the achievement of new results? And in this process is it not manifest that there is a continual synthesis, an incorporation of new results with prior results to form a totality; and that at any time the entire achievement becomes the total premise for further results? Do we not know, further, that this history must have had a beginning; that there must have been a moment in time when a man of the past for the first time grasped, in full awareness, a truth as being there in its own right, as being evident, as constituting knowledge which was self-justifying and capable of indefinite expansion?

Each science is thus related to an open chain of generations of investigators, working with one another and for one another. For the later investigators, the earlier acquisitions or results are not, in general, grasped in the same way as they were by the original discoverer in the original act of discovering. They have become embodied in speech and writing; and indeed in no other way could they be objectively and self-identically there, as ideal objects, for Everyman, for every real or possible investigator of every place and of every future time. Also, it is their embodiment in speech and writing which allows them to be used as stepping-stones to further results, stepping-stones in a deductive development. But these advantages bring with them a seduction. The sounds of speech and the signs of writing, these indefinitely repeatable sensible forms of the embodiment of the ideal objects of knowledge, are, for the most part, taken in passively, in an unreal way, because they are given in the sphere of trust which is language. This seduction is a kind of forgetting, a lapsing of the originally active grasp of evidence, which nevertheless permits the deductive process to proceed. Thus Galileo and Kepler, and we also, can accept the geometry of Euclid as a self-contained science, with no roots or foundations outside itself; we have lost sight of its beginnings, of the idealizing activities which, starting from the vaguely typical objects of experience, and the rules of thumb in the practical arts, produced a universe of ideal entities among which exact and necessary relations hold.

Can the original evidence be regained, reactivated? Can we, for instance, rediscover the original meaning of objective knowledge, science, as present to the mind of the man

who first envisaged its possibility?

I would claim that this unidentifiable man is not totally unknown to us. He lived, no doubt, in an already developed cultural world. Like his contemporaries and like all men, he had first lived naively within that world, which he had then taken for granted and accepted unquestionably as reality. It was a magico-religious world, thoroughly imbued with meaning, with a traditional meaning bestowed on it by the members of the community whose world it was. All activities there were traditional, and were undertaken for the sake of living and making one's way about in this limitedly meaningful world. Even cognitive activities would there be motivated by, and essentially related to practical human interests. The notions of knowledge, truth, and error, would be understood only in relation to the specific world belonging to the community. Speculative activities would occur only within a finite horizon.

Some moment, for some man, was a moment of emergence from this limited world. It was, if we are to believe Plato and Aristotle, a moment characterized by wonder. And indeed, to wonder is to suspend practical activity, it is to adopt the attitude of the detached, onlooking observer. And in the attitude of wonder there arises the conception of Being, Being-as-it-really-is-in-itself, a conception standing in contrast to the limited world belonging to a specific human community. Also, and correlative to this conception, there arises the idea of objective science, or knowledge of being, epistēmē, standing in contrast to the opinion, doxa, by which men relate themselves to their traditional and everyday world. This moment is a disclosure of unlimited horizons. For the idea of episteme is an ideal norm, an ideal limit with respect to every cognitive endeavor. The grasping of any single truth will henceforth be regarded as a transitional phase within an infinite process oriented towards this ideal limit epistémě as finally accomplished.

The rise of this idea in Greek Antiquity marks the appearance in history of a new type of man who in all his finitude assumes an infinite task. To belong to this tradition is less a glory than a responsibility. To seek to uncover its original meaning is an essential step toward the discovery of what we are.

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The Myth of Virgil's Aeneid*

By JACOB KLEIN

It is impossible to read the Aeneid without being constantly reminded of the Iliad and the Odyssey. Nor can one read the Aeneid without becoming aware that the poem intends to glorify Rome and Rome's imperial and pacifying power under Caesar Octavian Augustus. All of you, I think, and also all Virgil commentators agree on these points. Let me quote two ancient ones.

Servius, 4th century A.D., has this to say: "This is Virgil's purpose: to imitate Homer and to praise Augustus in the light of his ancestors" (Intentio Vergilii haec est, Homerum imitari et Augustum laudare a parentibus).

Macrobius, 5th century, explains: Virgil

held his eyes intently upon Homer in order to emulate not only Homer's greatness but also the simplicity and power of his diction and its quiet majesty. Hence the multifarious magnificence of the various personages among his heroes; hence the intervention of the gods; hence the weight of mythical details; hence the natural way of expressing passions; hence the tracing back of the origin of monuments; hence the elevation of his metaphors; hence the ringing sound of his rolling diction; hence the climactic splendor of single incidents.

This "sweet imitation," says Macrobius, leads Virgil to

the point of even imitating Homer's vices.

We have to note that these ancient commentators attribute to Virgil a double purpose: not only is it his intention to praise Augustus, his imitation of Homer is, according to them, also an end in itself.

Let me give you a series of examples of what these commentators call Virgil's imitation of Homer. I shall quote, in an English version, lines from the Iliad and the Odyssey and corresponding lines, again in an English version from

Odyss. XII, 403: "But when we left that island and no other land appeared, but only sky and sea, then verily the son of Kronos set a black cloud above the hollow ship, and the sea grew dark beneath it." Aen. III, 192: "After

our ships gained the deep, and now no longer any land is seen, but sky on all sides and on all sides sea, then a murky rain-cloud loomed overhead, bringing night and tempest, while the wave shuddered darkling." This is repeated in Aen. V, 8. (Note that Virgil does not mention Zeus, the son of Kronos.)

Iliad VIII, 16: "Tartaros . . . as far beneath Hades as heaven is high above the earth." Aen. VI, 578: "While Tartarus' self gapes with abrupt descent and stretches twice as far, down through the shades, as the heavenward gazing eye looks up to Olympus and the firmament." (Note the change from a one to one ratio to a two to one

Iliad VI, 305: Theano, wife of Antenor, priestess of Athene in Troy, prays "Lady Athene, that dost guard our city, fairest among goddesses, break now the spear of Diomedes, and grant furthermore that himself may fall headlong before the Scaean gates." Aen. XI, 483: The Latin matrons implore Juno: "O mighty in arms, mistress in war, Tritonian maid, break with thine hand the spear of the Phrygian pirate [that is, of Aeneas], hurl him prone to earth and stretch him prostrate beneath our lofty gates."

Iliad I, 234: Achilles swears, in enmity towards Agamemnon: "verily by this staff, that shall no more put forth leaves or shoots since at the first it left its stump among the mountains, neither shall it again grow green. . . ." Aen. XII, 206: Latinus swears, in friendship towards Aeneas: "even as this scepter shall never again be dressed in light foliage and put forth branch and shade, since once in the forest it was hewn from the nether

Iliad XVI, 249: "So spake he [Achilles] in prayer, and Zeus, the counsellor, heard him, and a part the Father granted him, and a part denied." Aen. XI, 794: "Phoebus heard [the prayer of Arruns about Camilla], and in thought vouchsafed that part of his vow should prosper; the other part he scattered to the flying breezes."

Iliad IV, 122: "And he [Pandarus] drew the bow, clutching at once the notched arrow and the string of ox's sinew: the string he brought to his breast and to the bow the iron arrow-head. But when he had drawn the great bow into a round, the bow twanged and the string sang aloud, and the keen arrow leapt" (namely towards Menelaus who is not killed). Aen. XI, 858: The goddess

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Opis, sent by Diana, "drew the fleet arrow from the golden quiver, stretched the bow with grim intent, and drew it afar, till the curving ends met each with other, and at length, with levelled hands, she touched the pointed steel with her left, her breast with her right and with the bow-string." (She aims at Arruns who is killed.)

Odyss. XI, 206: "Thrice I [Odysseus] sprang towards her [his mother], and my heart bade me clasp her, and thrice she flitted from my arms like a shadow or a dream, and pain grew ever sharper at my heart." Aen. VI, 699: "Thrice, where he [Aeneas] stood, he assayed to throw his arms round his neck [his father's neck]: thrice the phantom fled through the hands that clutched in vain, light as the winds and fleet as the pinions of sleep." But we can also read in the second book of the Aeneid, verse 792: "Thrice, then I [Aeneas] strove to throw my arms round her neck [the neck of Aeneas's wife's shadow]: thrice the form, that I clasped in vain, fled through my hands, light as the winds and fleet as the pinions of sleep."

Odyss. XIX, 562: "For two are the gates of shadowy dreams, and one is fashioned of horn and one of ivory. Those dreams that pass through the gate of sawn ivory deceive men, bringing words that find no fulfilment. But those that come forth through the gate of polished horn bring true issues to pass, when any mortal sees them." (Penelope is saying these words.) Aen. VI, 892: "There are two gates of Sleep:—of horn, fame tells, the one through which the spirits of truth find an easy passage; the other, wrought smooth-gleaming with sheen of ivory, but false the shades that the nether powers speed therefrom to the heaven above." (Virgil, the author, is saying this.)

These examples can be multipled many, many times. There would be no point for me to continue quoting. But let us take notice of the fact that there is almost always some weighty difference embedded in the otherwise completely analogous phrasing and imagery.

However the similarity between the *Iliad* and the *Odyssey* on the one hand and the *Aeneid* on the other goes far beyond phrasing and imagery. Let me give you another series of examples of what is called Virgil's imitation of Homer.

When Odysseus arrives in Ithaca, Pallas Athene fills the countryside with mist so that Odysseus cannot recognize

era kulter lægurt, eg liger æler er ækeben hat ælæbur er elk kare giger til er ækeek kultig. I fillborg fillet et gjorg fillborg til er fill fill fill fillborg fillborg fillborg fill er fill er fillborg I kare fillborg fillborg elde, græn kare fillborg fillbæskvættæg kareg af fillbor er æke til elke

it. When Aeneas arrives in Carthage, Venus conveys him in a cloud so that nobody can see him. Before meeting with Penelope Odysseus is beautified by Pallas Athene. Before meeting Dido Aeneas is beautified by Venus. A young man, Elpenor, falls from the roof of Circe's house: Odysseus sees his shade in Hades and buries the corpse when he returns to the light of the day. The pilot of Aeneas' fleet, Palinurus, falls from his ship and is subsequently killed by a barbarous tribe; his shade is seen by Aeneas in the nether world and his corpse buried later on. Diomedes and Odysseus, two seasoned warriors, engage in a spying mission at night, kill a quantity of Trojans and bring their enterprise to a successful and glorious end. Nisus and Euryalus, two young men, try to break through the enemy lines at night, kill a quantity of Latins and die gloriously but unsuccessfully at the end. The shade of Ajax keeps a contemptuous silence when facing Odysseus in Hades. So does the shade of Dido when confronted by Aeneas in the nether world. In point of fact, innumerable episodes in the Aeneid have their analogues in the Iliad or the Odyssey. There are exceptions, as, for instance, the diverse prophecies addressed to Aeneas, the transformation of the Trojan ships into mermaids in Book IX and the rôle of the warrior maid Camilla. Camilla has her analogue, however, in Penthesilea who, although not to be found in Homer, appears in many classical Greek texts and is mentioned by Virgil himself (I, 491). There is parallelism between Menelaus, Paris, and Helen on the one hand, and Turnus, Aeneas and Lavinia on the other, whatever the difference between these personages and their relationships. There is parallelism between Achilles and Patroklos on the one hand, and Aeneas and Pallas on the other, again whatever the difference betwen these pairs. To the catalogue of ships in the second book of the Iliad corresponds the catalogue of the Latin armies in the seventh book of the Aeneid. To the funeral games in honor of Patroklos correspond the games in honor of Anchises. Three times does Achilles circle the city of Priam in hot pursuit of Hector, while Aeneas covers five circles on the plain around the city of Latinus in hot pursuit of Turnus. To the shield of Achilles fashioned by Hephaistos upon the insistence of Achilles's mother corresponds the shield of Aeneas fashioned by Vulcan upon the insistence of Aeneas's mother. But the difference here is great: on Achilles's shield are moulded Heaven and Earth, Peace and War, Marriage and Litigation, Work and Leisure, and all the bounties of the earth; on Aeneas's shield are shown the glorious deeds of the Romans culminating in Octavian's victory at Actium.

What is the significance of this persistent and detailed, yet unfaithful "imitation"? In other poems, written before the Aeneid, especially in the Bucolics, Virgil also imitated his Greek predecessors, especially Theocritus. But this imitation involved only the general pattern, the general mood and style of the poems and hardly any of their details. The tradition tells us that Virgil, in his younger years, conceived the plan to write an epic poem devoted to the glory of Rome but that he gave up that plan because he found the task too difficult. In his later years he took it up again, prodded by Augustus, perhaps, and worked on the Aeneid for eleven years—until his death. It is in this period that what is called his imitation of Homer flourished supremely. The question we face is just this: why was it necessary for Virgil to imitate Homer to the extent he did? The ancient commentators I quoted in the beginning were late commentators. Their opinion that one of the purposes of the poem was the imitation of Homer and their implied opinion that such an undertaking was in itself praiseworthy were not shared by Virgil's contemporaries, we are told. His contemporaries reproached him for borrowing too much from Homer. Virgil is reported to have answered them, proudly and enigmatically, that it was easier to steal from Neptune his trident and from Hercules his club than to steal a verse from Homer. What did he mean by that?

Let us go back to the unquestionable purpose of the Aeneid. It is the praise of Augustus and the projection of an exalted vision of the Roman world. What is the background of this praise and this projection? The answer is: a century of civil disorders and wars, beginning in 133 B.C., after the end of the Punic and Spanish wars, and a passionate and widespread desire for peace. Peace is finally restored by Octavian in the year 31. Let me quote from a modern critic, Edward Kennard Rand: "To Virgil's contemporaries, hardly any religious or political event could have had a more spectacular importance than the closing of Janus' temple [which act signified peace] twice in the reign of Augustus, once after the victory of Actium [over Antony] and once in the year 25... Only once be-

fore in all Roman history had this happy event occurred, namely, at the completion of the First Punic War." This peace is based on Roman rule under Caesar Augustus. And the origin of this Roman rule is the great subject of Virgil's epic endeavor.

But how to attack so vast a subject? Let us understand Virgil's predicament. We, today, have an easy way of dealing with such a subject. To praise deeds or events, we call them "historical." We say: an historical meeting or an historical battle took place on such or such a day. In saying this we mean to pay tribute to the importance of that meeting or that battle. The adjective "historical" is used as a superlative which confers to an event a transcendent rank and the laurel of undying glory. But to Virgil—and not to him alone—the medium of praise is not History but Myth. For only the glowing light of a myth is able to illuminate the intrinsic unintelligibility of human deeds and sufferings. To write an epic poem on the grandeur of Rome means, therefore, to construct a myth. To use a Greek word familiar to Virgil, it means to μυθοποιεῦν.

Most myths are anonymous. They are there, filling, mirror-like, the horizon of human lives with splendid or dark or sometimes terrifying figures that bring to pass wondrous and awesome events. But there are also myths attached to names, to names of "mythmakers," as, for example, to Homer, to Hesiod, to Plato. Can one compete with these mythmakers? Can one invent "new" myths? In fact, did those mythmakers I have just mentioned invent theirs? Did they not merely imitate or modify or transpose myths in existence long before them, just as the Greek tragedians did? How, then, shall Virgil go about it? Virgil has before him a plethora of legends related to various sites and monuments in Rome and Italy. The legend of Aeneas himself, of Aeneas the Trojan, the source of Roman stock, is well known in Roman lands. Can these legends lend themselves to form the nucleus of the myth Virgil is after? Must not other myths be taken into consideration? Virgil himself seems to have cherished the myth of the succession of the ages of mankind. Let us consider this myth briefly.

Hesiod tells it in his Works and Days. Five generations of men have so far succeeded each other: first the golden one, in Kronos's time, when men lived as if they were gods, abundantly, without hard work or pain, without suffering from old age; then the gods created the second generation,

of silver, far worse than the first, shortlived, troublesome, lacking piety; then came the age of bronze, when men were terrible and strong, destroying each other, then Zeus created the fourth generation of hero-men, who are also called half-gods; they besieged seven-gated Thebes and fought before Troy for the sake of lovely-haired Helen; those who did not perish in carnage and war were settled by Zeus in the islands of the blessed, at the extreme end of the world, with Kronos, freed from bondage, as their king; finally came the age of iron, in which we live now, in which the sense of right and wrong has been almost entirely lost, in which force reigns and vengeance and weariness; but Zeus will destroy this generation of mortals also. This story of the ages of men can also be found in the Book of Daniel, supposedly written some hundred years before Virgil and in all probability unknown to him, but still symptomatic for the myth's universality and influence. In the second chapter of this book Daniel interprets a dream King Nebuchadnezzar had had. According to this interpretation the kingdom of Nebuchadnezzar is the kingdom of gold, of power and strength and glory; it will be succeeded by another, presumably of silver, which in turn will be followed by a kingdom of brass; then will come a fourth kingdom, that of iron and clay, in which kingdom men "shall not cleave one to another, even as iron is not mixed with clay"; at last the God of heaven will set up a kingdom which will stand forever. So much, then, for the myth of the ages of mankind.

But Virgil also knew the oriental and Greek doctrines of the Great Year. The Great Year is the time it takes for all stars and all planets to return to the same position, with respect to us, that they once occupied. This time constitutes an age, an alw. Once this age reaches its completion, a palingenesis occurs and a new alw begins, identical with the preceding one. This doctrine was also preserved in the collection of oracles of the Cumaean Sibyl, which oracles constitute the books of Sibylline songs widely diffused among the people. The cycle of cosmic life, the aἰών, was divided into ten great months. The end of each of these months and the transition into a new one was supposed to be announced by a celestial sign. The sun grew pale after the murder of Julius Caesar, and it is reported that the apparition of a comet during the funeral honors rendered to the victim was interpreted by a soothsayer to indicate the end of the ninth cosmic month and

the beginning of the tenth. Some amalgamation between the doctrine of cosmic cycles and the myth of the four or five ages of mankind must have occurred in the course of time. Each cycle repeats the succession of ages, from the golden to the iron one. We witness this in Virgil's fourth Eclogue in the Bucolics, which, I hope, most of you have read. Let me quote a few lines from it: "Now is come the last age of the song of Cumae; the great line of the centuries begins anew. Now the Virgin too returns, the reign of Saturn returns; now a new generation descends from heaven on high." The Virgin is Astraea or Justice, last of the immortals to leave the earth. The eclogue is addressed and dedicated to Asinius Pollio, a patron of Virgil, who was elected consul in the year 41 and played a decisive role in the reconciliation between the two mighty leaders, Marc Antony and Octavian, at Brundisium in the year 40. But the emphasis in the eclogue is on a child "in whom the iron brood shall first cease and a golden race spring up throughout the world." The new age shall begin in the consulship of Pollio and the mighty months will then commence their march. The babe shall have the gift of divine life and rule over a world pacified through his father's virtues. His cradle shall pour forth flowers for his delight. Goats will come to the milking unbidden and the ox lie down with the lion. "On wild brambles shall hang the purple grape, and the stubborn oak shall distil dewy honey." The serpent will be no more, and the false poison-plant perish. Any lingering traces of human crime shall gradually disappear. In the beginning these traces will still be visible—in sailings across the seas, in the building of walls around towns, in the cleaving of the earth with furrows. Another Argo shall be manned to seek the golden fleece, "and again shall a great Achilles be sent to Troy." But when the child will have become a man,

the trader shall quit the sea, . . . every land shall bear all fruits. . . . The earth shall not feel the harrow, nor the vine the pruning hook; the sturdy ploughman, too, shall now loose his oxen from the yoke. Wools shall no more learn to counterfeit varied hues, but of himself the ram in the meadows shall change his fleece, now to sweetly blushing purple, now to saffron yellow; of its own will shall scarlet clothe the grazing lambs.

The College



This prophetic poem is written in a dark and oracular vein, imitating, perhaps, the Sibylline songs. The identity of the child has remained a controversial subject among scholars. The preponderant opinion tends to recognize in the child a son of Asinius Pollio. Christian interpreters considered the fourth Eclogue as a prophecy of the Messiah, saw in the child Jesus, the Christ, and in Virgil a pagan Isaiah. Not by chance does Virgil play the role of Dante's guide and mentor in Hell and Purgatory. It is conceivable that the Sibylline oracles, re-assembled after the genuine ones had burned with the Capitol in the year 83, might have contained some Jewish oracles reflecting the spirit and the substance of Isaiah's prophecy and that Virgil might have experienced their spell. What seems indubitable is that the fourth Eclogue expresses the overwhelming longing for a New Beginning, a new age of Peace. The mythical idea of the completion of a cosmic cycle and of a return to the happy days of Kronos, the days of Saturn, seems ever-present to Virgil's mind.

We thus perceive the factors which determine the composition of the Aeneid devoted to the glories of Rome and to the bounties of Peace under the aegis of Caesar Augustus. The legend of the Trojan hero Aeneas, the ancestor of Roman power, would become part and parcel

of the myth of rebirth which tells of the return of the days of Saturn, of the golden age, after completion of a cosmic cycle and the beginning of a new alóv. Aeneas will land on Saturnian soil, in Latium. King Latinus, who rules "over lands and towns in the calm of a long peace" and himself descends from Saturn, will tell Aeneas, an offspring of Jupiter: "be not unaware that the Latins are Saturn's race, righteous not by bond or laws, but self-controlled of their own free will and by the custom of their ancient god." Evander, the "good man," king of the Arcadians, who is going to ally himself with Aeneas at precisely the spot where Rome shall stand, will recount to Aeneas the origins of Saturnian rule:

In these woodlands the native Fauns and Nymphs once dwelt, and a race of men sprung from trunks of trees and hardy oak, who had no rule nor art of life, and knew not how to yoke the ox or to lay up stores, or to husband their gains; but tree branches nurtured them and the huntsman's savage fare. First from heavenly Olympus came Saturn, fleeing from the weapons of Jove and exiled from his lost realm. He gathered together the unruly race, scattered over mountain heights, and gave them laws, and chose that the land be called Latium, since in these borders he had found a safe hiding-place [from the Latin verb latere]. Under his reign were the golden ages men tell of: in such perfect peace he ruled the nations; till little by little then crept in a race of worse sort and duller hue, the frenzy of war, and the passion for gain.

And before the final triumph of Aeneas, Juno, Aeneas's implacable enemy, will yield to destiny, but will request this from Jove: "command not the native Latins to change their ancient name, nor to become Trojans and be called Teucrians, nor to change their tongue and alter their attire: let Latium be, let Alban kings endure through ages, let be a Roman stock, strong in Italian valour: fallen is Troy, and fallen let her be, together with her name." Jove will grant Juno's wish, and Rome's future will be secure. Under Caesar Augustus the reign of peace will begin anew.

But is all this sufficient to account for the composition of the great Roman epic poem? Is this the myth of the Aeneid? Have we not overlooked a crucial point in the very conception of the poem, to wit, that the epic poem itself, while embodying a myth, cannot help reflecting the age it belongs to? But are not the great cosmic cycles, the alwes, identical? Do not in each of them the Argo, and Troy, and Caesar reappear? It is with respect to this point that a Platonic myth becomes of utmost importance to Virgil. It can be found in Plato's dialogue The Statesman.

The interlocutors in this dialogue are the Stranger from Elea and a young man, a namesake of Socrates. The

Stranger tells the myth:

During a certain epoch god himself goes with the universe as guide in its revolving course, but at another epoch, when the cycles have at length reached the measure of the allotted time, he lets it go, and of its own accord it turns backwards in the opposite direction, since it is a living being and is endowed with intelligence by him who fashioned it in the beginning.

Thus, we read further, "the universe is guided at one time by an extrinsic divine cause, acquiring the power of living again and receiving renewed immortality from the divine artisan, and at another time it is left to itself and then moves by its own motion. . . ." Young Socrates asks: "But was the life in the reign of Kronos . . . in that previous period of revolution or in ours?" The Stranger answers:

No, the life about which you ask, when all the fruits of the earth sprang up of their own accord for men, did not belong at all to the present period of revolution, but this also belonged to the previous one. For them, in the beginning, god ruled and supervised the whole revolution, and so again, in the same way, all the parts of the universe were divided by regions among gods who ruled them, and, moreover, the animals were distributed by species and flocks among inferior deities as divine shepherds, each of whom was in all respect the independent guardian of the creatures under his own care, so that no creature was wild, nor did they eat one another, and there was no war among them, nor any strife whatsoever.

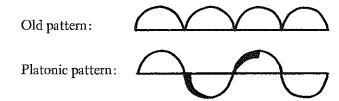
The Stranger goes on to describe how god himself was the shepherd of man in that age.

And under his care there were no states, nor did men possess wives or children; for they all came to life again out of the earth, with no recollection of their former lives. So there were no states or families, but they had fruits in plenty from the trees and other plants, which the earth furnished them of its own accord, without help from agriculture. And they lived for the most part in the open air, without clothing or bedding; for the climate was tempered for their comfort, and the abundant grass that grew up out of the earth furnished them soft couches. That, Socrates, was the life of men in the reign of Kronos; but the life of the present age, which is said to be the age of Zeus, you know by your own experience.

The Stranger summarizes his tale in the following way:

Now as long as the world was nurturing the animals within itself under the guidance of the Pilot, it produced little evil and great good; but in becoming separated from him it always got on most excellently during the time immediately after it was let go, but as time went on and it grew forgetful, the ancient condition of disorder prevailed more and more and towards the end of the time reached its height, and the universe, mingling but little good with much of the opposite sort, was in danger of destruction for itself and those within it. Therefore at that moment the god, who made the order of the universe, perceived that it was in dire trouble, and fearing that it might founder in the tempest of confusion and sink in the boundless sea of diversity, he took again his place as its helmsman, reversed whatever had become unsound and unsettled in the previous period when the world was left to itself, set the world in order, restored it and made it immortal and ageless.

This is the myth of the Stranger in Plato's Statesman, of which I have read to you only a small part. It changes the old myth of the cosmic cycles, which repeat themselves and remain identical, in a significant way. Diagrammatically this can be shown as follows:



The identity of the cycles in the Platonic pattern is, as it were, intermittent. And the reversal of the direction can be best seen at the beginnings of two consecutive cycles. What is important for us to see is this: to be able to accomplish his work, Virgil has to adopt this Platonic myth and to disregard its highly comical and self-refuting context. This adoption determines the composition of the Aeneid and, by implication, Virgil's true relation to Homer. The age of Homer is the age of Zeus, an age characterized by calamitous expeditions, disastrous wars, anarchical diversity. Its beginning is reflected in the Iliad and the Odyssey, its climax reached in the Punic wars. The content of the Homeric poems has to be understood as a derived one. What underlies this content is the reversal of the preceding age of Kronos. Virgil's epic of Rome will have to reverse this reversal. It cannot avoid reproducing the main features and the single episodes of the Greek work, but it will reverse their order, shift the emphasis in them, exchange the nature and the rôle of the leading personages; for the age of Jove is but a mirror-image of the age of Saturn. Does that mean that Virgil is bound to imitate Homer? No, on the contrary, it is Homer who cannot help imitating Virgil or, if you please, cannot help imitating the epic poet of the preceding Saturnian age, who is identical with Virgil. That is why there has to be so much unfaithful resemblance between the Aeneid and Homer's work. Virgil's own relation to the epic poem of the preceding age constitutes, it seems to me, Virgil's myth of the Aeneid. This is what he must have meant when he declared that it was easier to steal the club of Hercules and the trident of Neptune than to steal a verse from Homer. A poet of the god-led Saturnian age is incapable of stealing verses from a Jovian poet, however excellent this Jovian poet may be.

It might be objected that the Platonic myth, as a Greek myth, adopted by Virgil, is itself a product of the Jovian age. I venture to think that Virgil considered words of sages, words of philosophers as not subjugated to the dominion of the age in which these words were uttered, just as Tartarus and Elysium are outside the sway of the ages. It may be worth while to report to you what an unknown hand has inscribed into a manuscript of Donatus's Life of Virgil (Donatus himself wrote in the fourth century A.D.): "... although he [Virgil] seems to have put the opinions of diverse philosophers into his writings with most serious intent, he himself was a devotee of the Academy; for he preferred Plato's views to all the others."

Let me sketch briefly the way the reversal of the Jovian order is accomplished in Virgil's poem. First of all, the Odyssey precedes the Iliad here, as every commentator since Servius has remarked. But, as we shall see in a moment, the first six books, which correspond to the Odyssey, still belong to the old Homeric age. When Aeneas and his men arrive in Carthage, they face a basrelief on the temple of Juno which depicts the Trojan war and all the events described in the Iliad. Their past is before them. But this past also casts a shadow on Aeneas's sojourn in Carthage. Aeneas falls in love with Dido, who corresponds to both Calypso and Circe and resembles both Medea and Cleopatra. Aeneas's passion for this woman shows his lingering affinity to the Jovian age, to which Carthage itself, Rome's eternal foe, belongs. A violent separation from Dido becomes necessary, a separation consummated only in Elysium, when the golden bough, the gift to Proserpine, is planted by Aeneas on the threshold of the land of joy, the abode of the blest in the nether world. There, in Elysium, Aeneas sees the shade of his father, while Odysseus, in Hades, meets the shade of his mother. There Aeneas is shown by Anchises the future of Rome, while Odysseus, in Hades, is told of the past and the present, except for the prophecy of the seer Teiresias. When Aeneas is leaving Elysium, a decisive event occurs, challenging our imagination. I quoted earlier the passage in the 19th book of the Odyssey and the corresponding

passage at the end of the 6th book of the Aeneid about the two gates of sleep, one of horn through which true dreams pass and one of ivory through which false visions and shades issue forth. Anchises dismisses the Sibyl and Aeneas by the ivory gate (portaque emittit eburna). How shall we understand these words? Is Aeneas, the pious Aeneas, led on by divine power, a false dream? Is the grandeur of Rome, Aeneas's treasure and burden, a melancholy illusion? Or do not these words, uttered at the very center of the poem, rather symbolize a cosmic reversal in the structure of the universe, marking the transition from the age of Jove to the reign of Saturn? In Greek, the words for "horn" and for "ivory" are attuned to the meaning of "fulfilment" and of "deception." Not so in Latin. Aeneas emerges from the nether world a changed man. A re-birth has taken place. His passing through the gate of ivory transmutes its function. From now on the poem changes its character, too. As the poet himself says: "Greater is the order of things that opens before me; greater is the task I essay."

The task is greater indeed. The poem has to describe the beginning of the golden age. This beginning is marred by the inherited features of the preceding one, the iron one. Violence and fury will display themselves. -Under Turnus's leadership, Amata's predilections and Juno's help, the Latins and their allies will oppose the Trojans, aided by the Arcadians and Etruscans. A new Trojan war will rage in a reversed order. This time it will end with the victory of Aeneas, the new Hector, over Turnus, the new Achilles. After this victory there will be reconciliation between the Trojans and the Latins according to the terms agreed on by Jove and Juno. There will be reconciliation between Jove and Saturn, too. From then on Rome will begin its tumultuous ascent, until she reaches the height of Augustean peace.

The tradition has it that Virgil, when he had finished (or almost finished) writing the Aeneid, wanted to burn all he had written. Augustus himself is said to have prevented this from happening. We may surmise that Virgil knew this much about his myth: its truth depended on the actual destiny of Rome. And, prophet that he was, he foresaw the future pax romana, the future Roman peace, more often than not immersed in a sea of corruption, of monstrous crimes and dismal anarchy. We should be grateful to Augustus, though. For even if the gate of ivory may have preserved its Homeric character, the nobility of Virgil's attempt and the boldness of his mythical vision make us bow our heads and raise our minds.

Jacob Klein has been a Tutor at St. John's College, Annapolis, since 1938. He was Dean of the College from 1949 to 1958. He received his Ph.D. degree from the University of Marburg, Germany. He is the author of Greek Mathematical Thought and the Origin of Algebra (translated from the German), Massachusetts Institute of Technology Press, 1968; and A Commentary on Plato's Meno, University of North Carolina Press, 1965. His "Introduction to Aristotle" may be found in Ancients and Moderns, Basic Books, 1964.

NEWS ON THE CAMPUSES

SANTA FE STUDENT CENTER NAMED IN HONOR OF PETERSONS

The student center of St. John's in Santa Fe has been named the Peterson Student Center in honor of Mrs. Clementine Peterson of Baltimore and her late husband, Duane L. Peterson.

President Weigle and members of the Board of Visitors and Governors participated in the unveiling of a plaque on the building on October 2nd honoring the Petersons for their services to the College. Mrs. Peterson came from Baltimore to attend the program on the Santa Fe campus.

Before his death in 1963, Mr. Peterson was Chairman of the Board of Peterson, Howell & Heather, Inc., director and member of the Baltimore National Bank, and director of the Industrial Corporation of Baltimore.

He was president of the Baltimore Association of Commerce in 1952-54, and he was a member of the Executive Committee of the Greater Baltimore Committee, Inc., in 1959-61.

In the area of education, he was Vice President of the Association of Independent Colleges in Maryland, a trustee of Boys' Latin School, a trustee of Ripon College, and a member of the Board of St. John's College.

Mrs. Peterson is making a gift of \$1.25 million to St. John's College over a period of years to cover most of the cost of the student center, which houses the main library, dining hall, auditorium, coffee shop, art gallery, music room, and student and faculty lounges. The building was part of the first construction at Santa Fe in 1964. However, donations at that time fell short of the amount needed, so it was necessary for the college to borrow money to pay for the construction. About \$539,000 of the \$2 million construction cost has been repaid. Mrs.



President Weigle shakes hands with Mrs. Clementine Peterson of Baltimore after ceremonies naming the student center in Santa Fe the "Peterson Student Center" in honor of Mrs. Peterson and her late husband Duane L. Peterson, both former Board members,

Peterson's gift will enable the college to pay most of the remaining debt, President Weigle said.

"No member of the Board of Visitors and Governors has been more faithful in attendance and in activity on the College's behalf," Mr. Weigle said of Mrs. Peterson at the plaque unveiling. "Her keen interest in young people and in education has made her an ideal member and chairman of the College's Visiting Committee. Now, her exceedingly generous gift of this building attests to her interest in education, her commitment to St. John's College and its educational philosophy, and her confidence in this and future

generations of young people. She wished to make the gift in honor of her husband, Duane, but we have finally prevailed upon her to allow the Board to name the building in honor of both Duane and Clementine Peterson. This is most appropriate since in our mind and hearts they are inseparable in their dedication and their service to this College."

With Mrs. Peterson at the ceremony were her niece, Mrs. Lowell S. Peterson of Arcadia, California, and her children Duane L. II and Mary Gay.

In 1968 Mrs. Peterson established the Duane L. Peterson Scholarships for outstanding juniors at St. John's.

CAMPUS NOTES

Ford K. Brown and John S. Kieffer were elected honorary alumni during Homecoming activities in Annapolis.

Mr. and Mrs. Wiley Crawford are now living at 964 Old Santa Fe Trail in Santa Fe, New Mexico 87501.

Mrs. Mary P. Felter, Annapolis director of public information, was chosen to appear in the 1970 edition of Outstanding Young Women in America. One of 6,000 young women who contribute to the betterment of their communities, professions, and country, she is a graduate of the University of Maryland whose Alumni Association nominated her for the award.

Charles E. Finch is the Annapolis director of financial aids and placement.

Robert A. Goldwin, Annapolis dean, is editing a book entitled How Democratic is America: Responses to the New Left Challenges to be published by Rand McNally in the spring of 1971. (See also alumni news.)

Edwin Hopkins was co-chairman of the United Fund campaign on the Annapolis campus.

David C. Jones and Mary Modrall Burckmyer were married in Santa Fe on Saturday, September 5th.

Aaron Kirschbaum and Danielle Doyon-Dugal were married in Annapolis on Thursday, September 17th.

Thomas McDonald is on leave of absence for 1970-71.

Robert A. Neidorf, director of the Graduate Institute in Liberal Education in Santa Fe, discussed his Santa Fe commencement address with members of the Center for the Study of Democratic Institutions in Santa Barbara, California, on October 9th. In his talk, entitled "The Future and the Past," he remarked that this country is endangered because many of its leaders and young people lack "a sense of history."

Mr. and Mrs. John Sarkissian became the parents of a daughter, Julia Araxie Shahan, on Saturday, September 19th.

Mrs. Virginia Schenck is a resident

head of Humphreys Hall, replacing Mrs. Virginia West who accepted a position with Kirkland Hall College on Maryland's Eastern Shore. Mrs. Schenck is the mother of alumnus Peter B. Schenck.

Robert L. Spaeth, assistant dean in Annapolis and city councilman, was elected to the Maryland State Central Committee of the Democratic Party on Tuesday, September 15th.

Cornell University recently published Xenophon's Socratic Discourse: An Interpretation of The Oeconomicus, by Leo Strauss, Scott Buchanan Scholar in Residence in Annapolis. The book is available through the College bookstores.

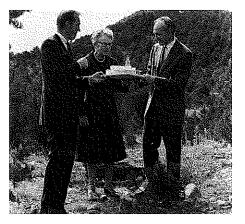
SANTA FE STARTS CONSTRUCTION ON NEW OFFICE BUILDING

Construction has started at Santa Fe on the "Tower Building," which should help the College meet its needs for classroom and residential space.

The new three-story structure will provide room for offices, supplies, and a section of the library, which are now taking up space in Evans Science Hall and a women's residence building.

Gifts and pledges have been received from private foundations and individuals to cover the building costs and related expenses. Sewell and Stanton

President Weigle (right) shows a model of the proposed new administration building at Santa Fe to Mrs. Walter B. Driscoll, Board chairman, and Vice-President J. Burchenal Ault. They are standing at the construction site at the foot of Monte Sol. Photo by Lynne Waugh.



General Contractors of Santa Fe submitted the low bid of \$499,975 for construction. William R. Buckley of Santa Fe is the architect. The building, in modified territorial-style, will include a portal and a bell tower. There will be 18,700 square feet of floor space. The contractor expects to complete construction before the opening of the 1971 fall term.

Gifts and pledges received for the new building include \$125,000 from the Fleischmann Foundation, Reno, Nevada; \$100,000 from the Kresge Foundation, Detroit, Michigan; real estate from John Murchison of Dallas valued at \$200,000; \$125,000 from a member of the Board; \$25,000 in a bequest from the late Miss Flora Conrad of Santa Fe, and \$15,000 from the U.S. Steel Foundation.

The structure will house offices for the president, vice-president, dean, assistant deans, treasurer, business manager, admissions director, and public information director, as well as the music and science sections of the College's library, space for printing and mailing activities, a conference room and supply area.

The additional library space will accommodate up to 25,000 volumes, including three important music collections, which will become available for general use for the first time.

POLITY REVISED

As noted in the President's Report in the September issue of *The College*, the Polity recently underwent its quinquennial revision.

"It has been a major accomplishment that every five years a mandatory review of this document has been completed to the general satisfaction of the various segments of the college community," wrote President Weigle.

Major changes include the broadening of the concept of the Faculty and the creation of the position of Provost on the Annapolis campus. In addition the alumni were officially recognized as members of the College.

The Polity presently is being printed and copies may be obtained by writing the Public Information Office, St. John's College, Annapolis, Md. 21404.

CLASS OF 1974: ANNAPOLIS

One hundred seventeen freshmen registered at St. John's in Annapolis in September. They came from 26 states, the District of Columbia, and Puerto Rico. The largest percentages of students came from Maryland, New York, Virginia, and Pennsylvania. The youngest freshman was 15 years old at registration; the oldest was 28. Nine students entered from the 11th grade, and 26 had attended college before, five of them at St. John's. There were five veterans of the military service. Seventy per cent came from public high school.

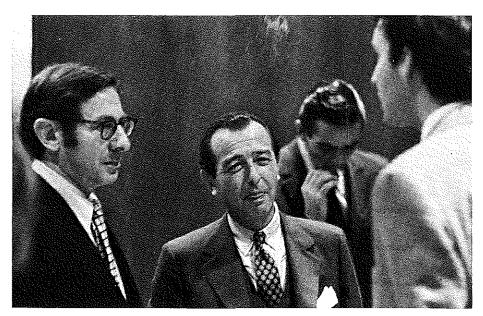
Most of the freshmen ranked in the top fifth of their secondary school class. Five were National Merit Scholars, 16 were National Merit semi-finalists, and eight received Letters of Commendation

Three freshmen are children of alumni, nine are siblings of earlier St. Johnnies, and one is the wife of a Tutor.

New Mexico Authors Speak At Library Luncheons

The Santa Fe Book and Author Luncheons were described in an article earlier this year in The Christian Science Monitor as "the most popular project in town." Several of the noon programs have filled the largest dining room available at Santa Fe's famous La Fonda. Twenty-seven New Mexican authors have spoken at the nine luncheons held the past two years. The 1970 fall series held on October 9th and November 13th included novelist Stanley Noves, wildlife-writer Burdetta Beebe, western-author S. Omar Barker, photographer Todd Webb, bridge expert Betty Lind, and archaeologist Douglas Schwartz.

The St. John's College Library Associates Committee plans the programs and obtains the speakers, who participate without charge. There are an estimated 160 writers living in the Santa Fe vicinity.



Annapolis Dean Robert A. Goldwin (left) and Yale University law professor Alexander Bickel converse with alumnus Arthur Kungle following Bickel's Friday evening lecture. Photo by James Villeré.

Ship Ahoy! Sailing Returns to St. John's

Through the assistance, financial and otherwise, of several friends and alumni of the College, students in Annapolis have four International 420's to sail in College Creek and the Severn River.

The boats were purchased from Arnold C. Gay, a local business- and yachtsman. Donors were Mrs. L. Corrin Strong, a member of the College's Board of Visitors and Governors; Mr. Coleman duPont, Mr. Richard H. Hutchings IV, 1944, and Mr. William W. Simmons, 1948, of Fawcett's Boat Supplies, Inc.; Mr. and Mrs. Frederick Fraley, Jr.; and the St. John's College Alumni Association, Mr. Jerome La Pides (through the La Pides Foundation), and Drs. Theodore G. Osius and Charles E. Iliff, Jr.

Additional donors to the boating program in services and materials were Mr. Charles Dell, 1924; Mr. Arnold C. Gay; Mr. Frank R. Atwell, 1953; Mr. David M. Saunders; Mr. Thomas Parran, Jr., 1942, Director of Alumni Activities; Mr. Charles T. Elzey, Treasurer, Annapolis campus; and Mr. Julius Rosenberg, 1938, Annapolis Director of Development.

Faculty advisors to the program are Mr. John Sarkissian and Mr. Geoffrey Comber. Mr. Jay Newlin, 1971, is Commodore.

(See boat photo in alumni news.)

PRESIDENT WEIGLE'S ACTIVITIES ARE VARIED

President Richard D. Weigle represented St. John's College at the inauguration of Albert R. Jonsen, S.J., at the University of San Francisco on February 27th. In August he spoke at the Foxhowe Association of Buck Hill Falls, Pennsylvania, about the College. In September he attended the organizational meeting of the Maryland Independent Colleges and Universities Association, a group which will lobby for state funds for private higher education. He also spoke at the dedication of the new Preparatory School in Santa Fe

On October 24th Mr. Weigle attended a function in honor of Thomas Mann at Princeton University. On October 30th he gave the inaugural address at the University of Albuquerque whose new president is Francis A. Kleinhenz.

The College

Mr. Weigle attended a family observance in New Haven, Connecticut, on September 11th when his father, the Reverend Luther A. Weigle, celebrated his 90th birthday. Reverend Weigle is Dean-Emeritus of the Yale Divinity School, and was chairman of the committee of biblical scholars who issued the Revised Standard Version of the Bible in 1952.

Annapolis Has New Artist in Residence

St. John's College in Annapolis has a new artist in residence, Robert A. Cole, a graduate of the University of Maryland with a B.A. degree in 1966 and an M.A. degree in 1968.

Mr. Cole was a graduate assistant instructor in Design I and an instructor in Applied Design I at the University. He was also an instructor in the basic drawing and design workshop at Dartmouth—Cape Cod during the summer of 1969. From 1968 to 1970 he taught ninth grade art at Annapolis Junior High School.

His exhibitions include "Maryland Artists," Baltimore Museum of Art, 1966; "Gross Memorial Exhibition," College Park, Maryland, 1969; "Maryland Annual," Baltimore Museum of Art, 1970; and a traveling exhibition with Maryland Arts Council, 1970-71.

STUDENT NEWSPAPER PUBLISHED IN ANNAPOLIS

A weekly newspaper, The Collegian, is being published on the Annapolis campus with senior Daniel Sullivan as editor.

The newspaper has kept the students, Tutors, and officers of the College informed about campus and community happenings. Also published last year, it prints any material that is submitted if signed by the author, subject to editorial comment.

Editor Sullivan states that anyone interested in receiving the newspaper should write him in care of the College, Annapolis, Maryland 21404. Subscriptions are \$7.00.



Margaret Frame '74 and Tutor Hugh P. McGrath as the Hostess and Falstaff respectively in the King William Players' production of "Henry IV, Part One." Photo by James Villeré.

STUDENTS PRESENT SHAKESPEAREAN HISTORY

The King William Players of St. John's College in Annapolis presented "Henry IV, Part I" by William Shakespeare, Friday, November 20th, and Saturday, the 21st, evening performances, and a matinee on Sunday, the 22nd. The performance, of more than amateur excellence, was highlighted by Tutor Hugh McGrath's surpassingly flawless Falstaff, Tutor Robert Williamson's flaming, and, at the same time, always clear and articulate Hotspur, and senior Harold Koenig's convincing transition from madcap to true prince, Prince Hal.

Tutor Charles Finch played a stately King Henry; junior Matthew Mallory was an impressively menacing Worcester. Tutors J. Winfree Smith and Malcolm Wyatt played Sir Walter Blunt and Sir Richard Vernon respectively. Student players were Russ Lipton as Poins; Margaret Frame, a delightfully witless Hostess; Thomas Casey, Douglas and Peto; Craig Mooring, an impressive Glendower; Richard Ferrier, Mortimer; Lee Elkins, a jaunty Gadshill; Lester Silver, Bardolph; Jane Young, Lady Percy; J. Elliott Tourtelott, Northumberland; and David Carey, First Carrier.

This smoothly cooperative effort of the whole college community was ably and strenuously coached, cajoled, and directed by senior Michael Victoroff. Tutor Robert Bart served in an advisory capacity. Playwright-Producer in Residence Alvin Aronson served as Executive Producer; sets were by Richard Gasparotti; and costumes were under the direction of Sarah Harrison.

Following the Sunday performance the cast joined with those of the audience desirous of it for a discussion of the play. The discussion focused on the differences between Hotspur's, Falstaff's, and Hal's understanding of honor—honor as exclusive, all embracing, and unpolitic; as counterfeit; and as sharable, civic, and political.

The achievement of this performance was the culmination of efforts beginning with more or less bimonthly Shakespeare readings shared by faculty and students the previous year, long and careful planning, and finally, long and painstaking, if not exhausting, work in rehearsals.

Saturday night's performance was sponsored by the women's group, The Caritas Society of the Friends of St. John's College in Annapolis. The Society also loaned the King William Players \$300 towards the purchase of permanent stage fixtures. (L.B.)

ALUMNI ACTIVITIES

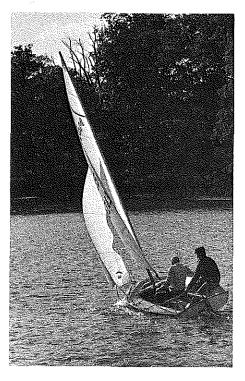
HOMECOMING

Homecoming 1970 attracted more than 230 alumni and their guests this year, for activities which covered Friday and Saturday, October 16th and 17th. Co-chairmen Jack A. Nadol '57 and Temple G. Porter '62 arranged an attractive schedule for the two-day period. Again this year, Dr. David Dobreer '44, of Alhambra, Calif., came the greatest distance, accompanied by his wife and two of their daughters.

Friday was a rather slow day, despite events designed to attract the out-door types. Dick Blaul '32 and Sam Shenker '38 had arranged a golf tournament, but only three players showed up: the Cozzolinos, Gene '29 and Bob '63, plus Ed Webby '63, made up the three-some. At the Boat House Frank Atwell '53 and the members of the Boat Club had the International 420's and Tempests rigged and ready, and several alumni fought the gusty breezes in College Creek. So far as tennis was concerned, no activity was evident.

The lecture Friday night by Douglas Allanbrook, Tutor, proved more popular than the athletic events, and the "Welcome Aboard" party after the lecture was even more attractive. Carol and Bill Tilles '59 were hosts for that successful event.

On the basis of figures from the Saturday morning registration, attendance was down from last year by about 20 per cent. What had been planned as three seminars was condensed into two, with Tutors Laurence Berns, Joseph P. Cohen '56, J. Winfree Smith, Robert L. Spaeth, and Edward G. Sparrow, Jr., dividing the leadership tasks. As was true last year, those who participated were generally enthusiastic about keeping the seminar in the Homecoming schedule.



A memorial service for Richard Scofield was conducted in Great Hall at noon on Saturday, and was attended by all members of the College community. The Dining Hall luncheon proved popular, although seating was at a premium at times. And as was hoped, alumni and students were able to talk with each other in a few cases.

The Annual Meeting of the Alumni Association attracted the usual 60-70 members; the principal items of business were the election of new directors and officers (see separate story); certain amendments to the By-Laws; the voting of \$500 to a memorial fund in memory of Richard Scofield; and the election of Ford K. Brown and John S. Kieffer to honorary membership in the Association.

After the Annual Meeting, a team of alert, aspiring, but aging alumni met a team of stalwart, strenuous, and sea-

soned students in a game of soccer. Before the final whistle, however, "harsh reality asserted itself," to quote Athletic Director Bryce Jacobsen '42, writing in the October 25th issue of The Collegian. "Muscle, nerve, and bone were deaf to the trumpet's call. As usual, they marched to a cadence all their own." The score: Oldsters—0, Youngsters—4.

Some 80-90 alumni, faculty, and students then gathered in the Library's King William Room for a session on graduate schools. Rogers G. Albritton '45, of Harvard University's philosophy department, was chairman of a panel of alumni, all present or former graduate students. Each discussed his or her own experiences, and then answered questions from students.

Graduate students on the panel were Sharon Bishop '65, Bryn Mawr Graduate Department of Social Work; John F. Miller '62, Art and Architectural History, University of Maryland; J. William Rumpp '63, Department of Physics, University of North Carolina; Peter B. Schenck '59, Clinical Psychology, Catholic University, and John H. White '64, Department of Philosophy, New School (New York).

Former graduate students were Bruce Collier '65, Lecturer, History of Science, Harvard; W. Bernard Fleischmann '50, Dean, School of Humanities, Montclair State College; Robert L. Parslow '51, Graduate Advisor-Associate Professor, Department of General Linguistics, University of Pittsburgh; Vernon E. Derr '44, Physicist, Environmental Science Services, Department of Commerce, Boulder, Colo.; Sydney W. Porter, Jr., '54, Vice President, Radiation Management Corporation, Philadelphia, and A. Stevens Rubin, M.D. '66, an intern at Philadelphia General Hospital.

Thanks go to Nancy Solibakke '57 for bringing this group of interesting alumni together for the benefit of the students.

For most alumni, the cocktail party was an occasion to meet old friends and to make new ones as they entertained the faculty and members of the senior class. As he has for several years, Henry D. Braun '59 made the necessary arrangements for food and beverages. Dinner in the gymnasium followed the libations, and was the setting for the presentation of the Awards of Merit and a talk by President Weigle (see separate story).

The day's events were complete with the party in the Coffee Shop after the dinner. Nancy Solibakke and Stephen Mainella '54, with last-minute help from William D. DeHart of the faculty, arranged the attractive setting.

New Board of Directors

The first Board of Directors to be elected in accordance with the 1969 By-Laws was installed during the Annual Meeting on October 17th. The By-Laws now provide for the election of eight directors in even-numbered years and four in odd-numbered years. This year, in order to start the cycle properly, eight directors were elected for two years, four for one year.

Two-year officers and directors are as follows:

President: William R. Tilles '59, program administrator with IBM Corporation in Washington, D.C., and treasurer of the Association for two terms;

Executive Vice President: Bernard F. Gessner '27, recently retired from the Coca-Cola Company, and a director of the Association for two years;

Secretary: Mrs. Nancy C. Solibakke '58, Executive Secretary of the State Coordinating Office of the League of Women Voters of Maryland and secretary of the Association for two years;

Treasurer: Temple G. Porter '62, Manager, Learning Material Production, Westinghouse Learning Corpora-



William R. Tilles '59 (left), newly-elected Association president, is congratulated by Darrell L. Henry '61, former president.

tion in Annapolis and a new member of the Board;

Directors:

William B. Athey '32, of the insurance firm of Athey, Oberg & Associates of Baltimore, former member of the Board of Visitors and Governors and a long-time director of the Association;

Bernard Casassa '34, contractor and property manager in the Washington, D.C., area and long active in alumni affairs, including service on the Board of Directors;

Stephen Mainella '54, Chief of the Housing Hygiene Section of the Anne Arundel County (Md.) Department of Health and a director for a number of terms:

Jack A. Nadol '57, an executive with the Navy Department in Washington, D.C., and a director for several terms.

One-year directors are as follows:

Jerome Gilden '54, owner and operator of the Jerry Gilden Gallery in Baltimore and vice-chairman of the Baltimore chapter of the Association;

Mrs. L. Faye Polillo '56, a teacher at the Key School in Annapolis and active in the Annapolis chapter;

William W. Simmons '48, an officer of Fawcett's Boat Supplies Company of Annapolis and active in the Annapolis chapter; and

Edward C. Webby '63, a member of the staff of the Anne Arundel County (Md.) executive and a director for three years.

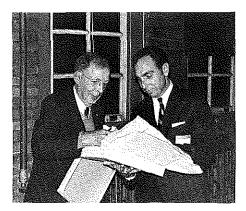
REUNION CLASSES

Again this year the decade classes, plus the 5th and 25th anniversary years, were encouraged to have reunions at Homecoming. In those classes in which a member was willing to act as coordinator, there was the best response. In all classes attendance was smaller than in last year's reunion groups.

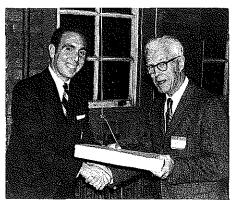
The following alumni were present for reunions: 1920—John D. Alexander, Sr., Mr. and Mrs. John H. Birely; 1930-Mr. and Mrs. J. Sprightly Kelly, Mr. and Mrs. Arthur E. Landers, Jr., Claxton J. O'Connor; 1940-Wilbur Matz (chairman); 1945—Rogers G. Albritton, Frank B. Marshall, Jr., O. M. Meredith, Gene P. Thornton; 1950-Mr. and Mrs. Jack Ladd Carr, W. Bernard Fleischmann, Mr. and Mrs. James H. Frame (chairman), Mr. and Mrs. Robert A. Goldwin, Mr. and Mrs. Theodore W. Hendricks, George Hofrichter, Mr. and Mrs. Irwin T. Hunt, John J. Logue, George Usdansky, Myron L. Wolbarsht; 1960-Lee and Hilda (Wozny) Freeman, Mary Gallagher, George P. Kell, Thomas J. and Belle (Patterson) Maher, Ronald C. and Katherine (Sauer) McGuirk, Elliot H. and Suzanna (Willis) Mini, Ronald A. and Sarah (Robinson) Munson, Frank B. Murray (chairman); 1965-Sharon Bishop, Bruce Collier, Jethro M. Eisenstein and guest, Britt R. Gilbert, Thomas D. and Pamela (Mark) Harvey, Diana Katz, Allena (Dungan) Leonard, Bruce M. Preston (chairman).

SPRING TRIP TO VIRGIN ISLANDS

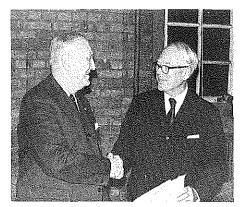
As the old song says, "Three strikes and you're out," so we're coming up to bat for the last time. The game? To try to interest alumni in group travel somewhere. Our previous efforts were



Philip L. Alger '12 inspects Award of Merit plaque with William R. Tilles '59.



Representing General Noble, Carey Jarman '17 accepts plaque from President Tilles.



Luther S. Tall '21 (left) receives plaque from former Award winner Thomas B. Turner '21.

obviously ill-timed or unappealing; we hope that this latest effort will prove more attractive.

If you didn't see one of the flyers at Homecoming, you will soon receive one through the mail. Basically, the trip involves eight days and seven nights in St. Croix, U.S. Virgin Islands. The travel is on jet aircraft from Baltimore's Friendship Airport, the cost covers almost everything during the trip.

The dates for the trip are April 17-24, 1971, just at a time when we can all use some warm surf and sun after a long, cold winter. Watch for the special announcement giving all details. Meanwhile, make plans now to join in the fun.

Award of Merit

An electrical engineer, a Marine general, and an advertising account executive were honored with the 1970 Alumni Award of Merit at Homecoming this year. This was a departure from the practice of the past 20 years, and reflects a decision by the Association directors to increase the number of annual awards from one to not more than three.

The Award of Merit, established in 1950, is given each year by the Alumni Association to an alumnus "for distinguished and meritorious service to the United States or to his native state

or to St. John's College, or for outstanding achievement in his chosen field."

Philip L. Alger of the class of 1912 has been a professional engineer all his life. He earned degrees of bachelor of science from Massachusetts Institute of Technology and master of science from Union College, both in electrical engineering. St. John's awarded him an in-course master's degree in 1916, and in 1968 he was honored by the University of Colorado with the degree of doctor of science. Forty years of his long career were spent with the General Electric Company, during which time he became a leading authority on electric motors. He holds numerous patents in that field, and has written extensively about all aspects of mathematics, electricity, and professional ethics, among other subjects. He received the Lamme Award from the American Institute of Electrical Engineers in 1958, and eight years later was selected as Engineer of the Year by the New York State Society of Professional Engineers.

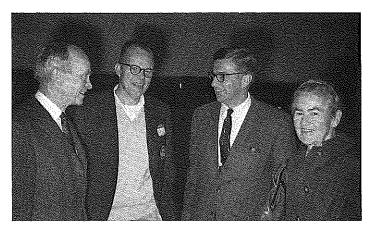
Alfred Houston Noble served in the United States Marine Corps from 1917, when he graduated from St. John's, until 1956, rising from Second Lieutenant to Lieutenant General while on active duty. Upon his retirement he was advanced to the rank of General, the first St. John's alumnus to hold that rank. He served in France with the Sixth Marine Regiment dur-

ing the First World War, and in the Treasury Islands, and at Choiseul Island, Bougainville, and Guam during World War II. His many decorations include the Distinguished Service Cross, the Navy Cross, the Silver Star Medal with Oakleaf Cluster, the Legion of Merit with Combat "V," and the Croix de Guerre with Silver Star and Diploma.

In 1827 Francis Scott Key helped form a Society of the Alumni; in 1934 Luther S. Tall incorporated the Alumni Association in its present form, served as its president for an unprecedented three consecutive terms, and was a member of the Board of Visitors and Governors during the critical years 1936-1938. Currently an account executive with radio station WMAR-FM in Baltimore, he was formerly vice president of Wm. H. Lohmeyer, Inc., a men's wear firm in Baltimore. For years Mr. Tall has been a leader in alumni activity in the Baltimore area, even after stepping down from active participation in Association affairs.

General Noble was the only honoree unable to attend Homecoming, sending a telegram of regret from his home in La Jolla, Calif. Carey Jarman '17, winner of the Award in 1964, accepted the presentation plaque for him. Dr. Thomas B. Turner, a classmate of Mr. Tall, a member of the Board of Visitors and Governors, and the recipient of the 1957 Award, made the presentation of Mr. Tall's plaque.

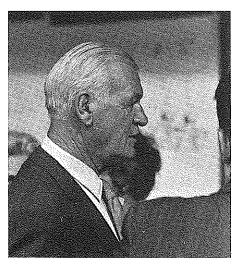
The College



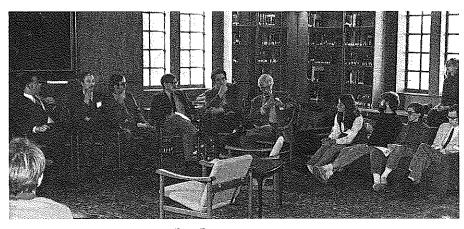
President Richard D. Weigle greets Frank B. Marshall, Jr. '45, William W. Simmons '48, and the latter's mother, Mrs. Haven Y. Simmons,



Front, left, A. Willard Joyce '13, Mrs. Dunlevy C. Downs, Mr. Downs '16; Rear, Guy D. Thompson '16, Walter W. Warner '14, Ernst Von Schwerdtner '17, and Carey Jarman '17.



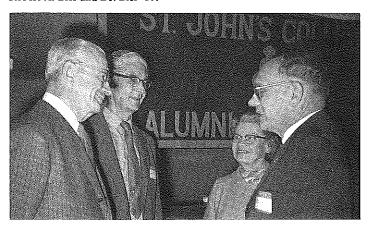
Bernard F. Gessner '27, new executive vicepresident of Association, waits for dinner.



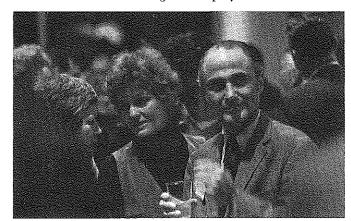
Graduate School forum in King William Room.

ANNAPOLIS HOMECOMING

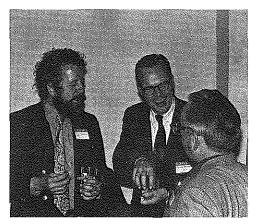
From left: Roland N. King '25, George F. Wohlgemuth '19, Mrs. Robert A. Bier and Dr. Bier '19.



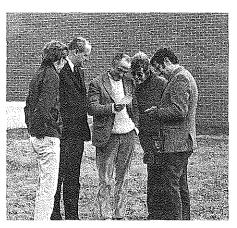
Mrs. Robert A. Goldwin (almost hidden, left) chats with Mr. and Mrs. Irwin T. Hunt '50 during cocktail party.



December 1970



Gene Thornton '45 (left), and Frank B. Marshall, Jr. '45, join Alex Koukly '44 at Friday night "welcome aboard" party.



From left: Bill Hendricks '73, his dad Theodore W. '50, Mr. and Mrs. Irwin T. Hunt '50, and Annapolis Dean Robert A. Goldwin '50.



California alumnus David Dobreer '44 (left) renews old friendship with Henry T. Wensel, Jr. '46.



From left: Julius Rosenberg '38, Cyril R. Murphy, Jr. '36, John D. Alexander, Sr. '20, Darrell L. Henry '61, Earl R. Keller '21, and A. Willard Joyce '13.



Henry S. Shryock, Jr. '32 and Charles Dell '24 follow soccer game closely.

Mrs. Juliana Rugg, College nurse, Joan E. Cole '57, Gay (Patterson) Ahlf '59, and Charlotte King '59, from left.



Sharon Bishop '65 and Tutor Edward G. Sparrow, Jr.



ANNUAL GIVING

Since 1937 St. John's has insisted that it is essentially different from other colleges. That this has been and is true was never more clearly shown than in the past five years. While violence has torn other campuses apart, St. John's has remained an island of relative tranquility, a college whose sole purpose is education, not political action.

Unavoidably, there is one area in which St. John's is exactly like all other colleges: in its financial need. And that area is more critical for all colleges this year than perhaps ever before. Unlike

some, St. John's has neither closed nor "gone public"; like many, we have raised fees this year and may have to do so annually. Unlike some, we have not frozen faculty and staff salaries; we have tightened our belt and pared an already streamlined budget.

And like almost all others are doing, St. John's this year is asking parents, friends, corporations, and alumni to raise their level of giving. This year's alumni campaign has a goal of \$30,000, for instance, up \$5,000 from last year.

Appeals for alumni gifts will start

shortly after January 1st. We hope to be able to terminate the campaign in May. During that period you will be approached in person, by 'phone, or by letter; please respond as generously as you can. Don't hesitate to give, however, because your gift can't be a large one: the number of gifts is as important to us as the total amount received.

If you want to take maximum advantage of tax benefits from your gift, you might consider giving before December 31st. No matter what you give, or when, the College will be most grateful.

CLASS NOTES

1914

Ernest L. Yost, M.D., as a member of the 50th anniversary class at Georgetown University, in June was honored with a Golden Jubilee Citation by the University. Dr. Yost received his medical degree from Georgetown in 1920.

1916

Lt. Gen. Thomas E. Bourke, USMC (ret.), and Mrs. Bourke were September visitors with his brother, Clyde E. Bourke '18, at the latter's Annapolis home. Gen. and Mrs. Bourke make their home in San Diego, Calif.

1917

The Rev. Dr. J. Turnbull Spicknall was honored on Sunday, April 5th, 1970, by the congregation of the Woodside United Methodist Church of Silver Spring, Md. In commemoration of his 50 years of clerical service, a portrait of Dr. Spicknall was unveiled at the church.

1919

Robert A. Bier, M.D., has "retired" from the post of chief medical officer of the Selective Service System, and has joined the Medical Division of the Civil Service Commission. Dr. Bier has been very active in re-forming the Washington chapter of the Alumni Association.

1921

Luther S. Tall, an account executive with radio station WMAR-FM in Baltimore, and one of this year's Award of Merit winners, was featured recently in the station's newsletter in a unique way. One page was devoted to a reproduction of Mr. Tall's senior class entry in the 1921 St. John's Rat-Tat.

1923

Maj. Gen. William C. Purnell in October received the Maryland Distinguished Service Medal and a special commendation from the Governor. Gen. Purnell, one of the command-

ers of the 175th Infantry Regiment during World War II and later commander of the 29th Division of the National Guard, is the second recipient of the Medal.

1924

Lt. Gen. Ridgely Gaither, USA (ret), Police Commissioner of Annapolis, and Miss Anne Stuart Harcourt were married during the summer in Silver Spring, Md. Dr. Robert S. McCeney, Gen. Gaither's roommate at St. John's, served as best man.

1934

The August 2nd edition of The Denver Post contained an interesting article by and about W. Thetford LeViness of Santa Fe. A cerebral palsy victim since birth, and confined to a wheel-chair, Mr. LeViness, nevertheless, pursues a full-time career as a librarian at the State Capitol in Santa Fe, a side-line as a free-lance journalist, and with a companion travels the Southwest in a Toyota Land-Cruiser to gather material for his articles.

Gust Skordas, assistant archivist for the State of Maryland, addressed the September luncheon meeting of the Annapolis Alumni chapter, describing the work done in the Hall of Records.

1935

Morton S. Fine is one of the co-producers of the new ABC-TV series, "The Most Deadly Game." A radio and television writer who turned producer, Mr. Fine has among his credits the movie "The Pawnbroker" and the "I Spy" television series.

1938

William T. Ross in July was appointed manager of production planning for Celanese Fibers Company in Cumberland, Md. An employee of the company since 1940, Mr. Ross holds a bachelor of science degree in chemical engineering from The Johns Hopkins University.

1939

Frederick R. Buck's son Rick, a chip off the

old block, was a star lacrosse player at Brown University last season.

1941

Paul R. Comegys, a general life insurance agent in Trenton, N.J., has become a part-time instructor at Rider College.

1944

John Davis Hill received the degree of master of arts in librarianship from the University of Denver last June. He is currently employed as Geology/Geophysics Librarian at the University of California at Los Angeles,

1945

Frank B. Marshall, Jr. has been elected president of the Annapolis Chapter of the Alumni Association. Mr. Marshall is the manager of an investment securities office in Severna Park, Md.

Gene Thornton now writes the photography column of The New York Times Sunday edition,

1950

Robert A. Goldwin, dean of St. John's in Annapolis, was selected to appear in the 1970 edition of Outstanding Educators of America. This national honor has been extended to Mr. Goldwin on the basis of exceptional service, achievements, and leadership in education. Approximately 5,000 educators in all levels of education are thus honored each year.

1952

Warren Winiarski and his wife, Barbara (Dvorak) '55, live in the Napa Valley of California, where he is a winery consultant and is developing a 40-acre Cabernet Sauvignon vineyard. He hopes his enterprise will produce wines of excellence comparable to those of Bordeaux. The Winiarskis live on a mountain top, and are initiating their three children in winery and vineyard practices, according to a recent letter.

1954

Folksinger and recording artist Glenn Yarbrough recently gave a concert at the Anne Arundel Community College near Annapolis. Many of Mr. Yarbrough's recent recordings have been works by his long-time friend, Rod McKuen.

W. Douglas Weir, M.D., on July 1st started full-time work on the faculty of the University of Maryland School of Medicine as an assistant professor of psychiatry. His decision to devote more time to teaching was influenced largely by what Dr. Weir terms "stimulating, exciting changes in medical education.'

1958

An interesting letter from Joseph M. Green, M.D., brings us up to date on his career. After St. John's he worked for a publisher for several years, attending school at night, and then he entered the State University of New York Downstate Medical College. He now has his medical education, a year's internship, and three years' residency in Internal Medicine behind him. This year Dr. Green is in the first of two years of a fellowship in cardiology, and is acting director of the Systems Computer Laboratory, at Long Island College Hospital in Brooklyn. He and his wife, the former Rachel Elfie, have a son, Noah, age one.

1959

Christ Sagos has accepted a position with the IBM Corporation working in Phoenix, Ariz., managing a small group on a highway contract with the Arizona highway department. His wife, Mary (Horton) '61, has completed her undergraduate studies at the University of Wisconsin, graduating this past August. The Sagoses have daughters seven and nine years of age.

1960

Along with the invitation to celebrate their 10th reunion at Homecoming, the members of the class received a questionnaire card from chairman Frank Murray. The idea was to send back a card if they couldn't attend in person; six replies were received, and are summarized below. (In each instance the last statement, set in quotation marks, is in reply to the question, "How have you changed?"

How have you changed?")
Betty (Beck) Bennett, husband David, and their two girls live in Berkeley, Calif., and Mrs. Bennett replies, "How not? I view cynicism and skepticism as necessities, find it harder to hope. But I do."

Rosalie (Levine) Boosin, husband Joel, and their daughter live in Brooklyn, Mrs. Boosin is a teacher on child care leave, and writes,

"I feel older. I hope I'm wiser."

David Chang, wife Ann (Wisotzki) '63, and their two children live in Acton, Mass., where he labors in the military-industrial complex, and from whence he replies, "for the better, thank you."

John E. Gorecki, an instructor in English at Macon (Ga.) Junior College, replies, "I am married, and I am looking forward to beginning a Ph.D. program in English shortly at some Southern university.'

John R. Jacobson is married, has two children, is Executive Director of Associated Colleges of the Mid-Hudson Area, lives in New Paltz, N.Y., and answers, "more cynical." John J. G. Lane, his wife Grace (Prevost)

'59, and their three children live in Del City, Okla., where Capt. Lane is Chief of Research and Analysis, Communications Computer Programming Center, Tinker Air Force Base. His answer to the question about changing, "Aged 10 years.'

Kendon and Patricia (Townsend) Stubbs live in Charlottesville, Va., with their two sons. Mr. Stubbs is reference librarian and a member of the faculty of the University, while Mrs. Stubbs is "former teacher and a future teacher and full-time housewife." The Stubbses answer, "perhaps most significantly by activity in community affairs and problems.'

1962

Maria (Flaschberger) Hanneman writes that her husband has received a one-year overseas research grant, and that they will be living in Ritterweg, Germany.

1963

Daniel T. Devereaux married Miss Helena Wiskman last April, and is currently assistant professor of philosophy at the University of Virginia.

Roberta Lee (Irwin) Wagner writes that she, her husband, and their six children have moved to Kansas City, Kans., where she has accepted a one-year internship in clinical psychology at the University of Kansas Medical Center, She hopes to obtain her Ph.D. degree in clinical psychology from George Peabody College, Nashville, Tenn., next summer.

1964

John P. Hetland and six other IBM'ers left that corporation in October 1969 to form Corstar Business Computing Company in White Plains, N.Y. Mr. Hetland says, "we are not getting rich, but we're having fun and learning

1965

Dennis G. Glew in August was appointed an instructor in history and classics at Moravian College, Allentown, Pa. A Ph.D. candidate at Princeton University, Mr. Glew holds an M.A. degree in classics from that institution, and studied at the Albertus-Magnus University in Cologne, Germany, last year.

Bruce Collier, a June recipient of a Ph.D. degree from Harvard University, now lectures

in the history of science there.

 \hat{T}_{n}^{k}

Vivian T. Ronay and Theodore L. Barry III were married during the summer, and make their home in New York City.

1968

Daniel L. Cleavinger (SF) and his wife, Anne (Bancroft) SF '69, have returned safely from Peace Corps service in Peru. Mr. Cleavinger is now slated for active duty in the U.S. armed forces.

Daniel V. Madfredi is currently attending graduate school at the University of Toronto.

Lt. Kerry Nemovicher writes that he is alive and well "somewhere on the border" in Israel. His card promises a longer letter when circumstances permit.

Antigone Phalares (SF) and Ervin Lee Moore were married on June 20th in Tanana, Alaska, Mr. Moore is a sanitarian for the U.S. Public Health Service. The Moores were scheduled to be transferred to Albuquerque in September, and she plans to return to school, perhaps to pursue a master's degree in education. Mrs. Moore writes that Anne (Harlan) Plummer (SF) is also in Albuquerque, taking education courses at the University of New Mexico.

Jinna (MacLaurin) Rie is presently enrolled at Goucher College in Towson, Md., as one of 38 participants in Goucher's 5th Year Program in Elementary Education leading to the degree of Master of Education.

1969

Meredith (Ardis) and G. Michael Anthony now live in Eugene, Oreg, Mrs. Anthony this past spring received her master's degree in writing from The Johns Hopkins University.

Janet Gleason and Robert J. Benton were married on June 13th, and now live in New York City.

David H. Humphreys has joined the staff of the Anne Arundel County (Md.) Department of Social Services.

1970

John R. Dean, having traveled in Europe and Greece this summer, has settled into his studies in comparative literature at the University of Massachusetts.

Joanne Murray is a teaching assistant in the Department of Physics and Astronomy at the University of Maryland.

Adrian E. Pols is currently employed by the Anne Arundel County (Md.) Department of Social Services.

In Memoriam

1909-BUSHROD B. HOWARD, Charlestown, S.C., August, 1970.

1925-J. GORDON BASSETT, Baltimore,

CARTER D. MESSICK, Annapolis, Md., October 5, 1970.

1934—ROBERT CRANE (LEATHERBEE), New York City, July 2, 1970.

1965—Tracy S. Youmans, Portland, Oreg.

1969—Anthony J. Snively III, Cambridge, Mass., October 12, 1970.

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