I. CRITICAL THINKING AS THE CENTRAL PRINCIPLE OF THE CURRICULUM

We find that the curriculum presently offered lacks any clear, developed statement of its unifying purpose. A single sentence in the "Course of Study" booklet refers to "a required core of studies believed to be fundamental to a liberal education and elective courses designed to fit the special needs and interests of the individual student." As a criterion of evaluation and a guide for future planning, this leaves much to be desired. We might have hoped to find more enlightenment by examining the specific diploma requirements. Such is not the case. At present the diploma represents a certain breadth and depth of exposure to various fields of knowledge, certified by successful passage of courses, over a period of time adding up to four years from the completion of the 8th grade. It is not clear however on what basis the degree of exposure required in particular subjects has been determined. Certainly the rationale for requiring six trimester courses of English while requiring only three trimesters of science has not been questioned at Phillips Academy. Neither, we should add, are such questions raised at public high schools which solve diploma requirements normally by extending "major" subjects throughout the four years. We therefore consider that a clear and full statement of purpose for the curriculum is of the utmost urgency and we propose that such a statement be drawn up by the academy, regardless of the fate of this report.
In general, education has as its central aim the transmission of a cultural inheritance and the initiation of the rising generation into those creative processes and activities by which such an inheritance was built, by which it is sustained and by which it will be furthered, renewed and ultimately replaced. The worth of such a general program of education is dependent on its ability to prepare its students to take up with sensitivity, commitment and insight the new challenges that confront individuals and cultures.

Two related states of affairs heighten the importance of such a preparation at the present time. They also determine the shape such preparation should take. First, the quantity of information we presently possess about our experience is growing and changing at a rate that precludes the mastery by an individual of any major field of study. Even the task of maintaining a competent grasp of a specialized branch of a field of study is impossible without a steady commitment to keep abreast of new developments. Second, this influx of information has contributed to the creation of an intellectual era when no single network of concepts convincingly defines our relation to our experience and when fundamental conceptual reformulation is the rule and not the exception in the traditionally defined disciplines. In some cases, these very disciplinary definitions have been thrown into question. In the context of this explosion of information and this time of intellectual ferment, the capacity to think critically becomes vital.

Critical thinking is the exercise of mind of a person who has a general understanding, not simply of specific patterns of reasoning, but of the nature of thought itself. Thinking of a rigorous, innovative and independent kind requires a self-conscious understanding on the part of the individual of how his mind functions and how this functioning is
influenced by cultural context. A thinker must be able to draw back from
the immediate concerns of his position or undertaking in order to see it
in its entirety and in the context of his chosen method or approach. This
perspective on how one's mind works, on the nature of the tools of lan-
guage and conceptualization, the methods of investigation and models of
explanation and expression offered by the various fields, on the aesthetic
and moral values each thinker and his culture weave into his thinking must
be acquired if responsible theoretical and practical judgements are to
be made. In brief: critical thinking occurs whenever ideas and ideals
are understood, evaluated and developed with an awareness of the standards
and limitations built into the thinker's concepts, media of expression,
methods of investigation and models of explanation.

We therefore propose that the Academy adopt as the unifying prin-
ciple of its curriculum and as its highest, though necessarily not the
exclusive, academic goal the development of critical thinking among its
students.

A number of caveats are in order here.

In the first place we are not suggesting that the development of
critical thinking be the exclusive aim of Phillips Academy. No less vital
are those general goals characterized by one of our number as craft, system
and non-system.

"Craft is the skill of manipulation, the use of a language,
a tool, an instrument. Here there is relatively little
abstract thought. System is learning and thinking within
an established order, reasoning from clearly established
givens: literary analysis, physics, chemistry, mathematics,
art analysis, history. The emphasis here is on understand-
ing. Non-system is the return to doing. The student puts
the craft which has been disciplined through systematic
study to work in a way which is new and original to him.
In a word he becomes creative."

These capacities would remain major foci of educational endeavor
in all disciplines. Nevertheless critical thinking represents a special
dimension of awareness and ability. It is a self-conscious appropriation
of the activity of mind which permits one to be critical of one's own cre-
vativity and the crafts and systems that support it. It represents the
summit of the capacity of the human mind--the ability to bring the mind
as critical to bear upon the mind as creative. As such it fittingly serves
as the central focus of education.

In the second place because of its contextual nature the develop-
ment of critical thinking cannot be divorced from instruction in the con-
tent of culture presently parcelled out in our curriculum along tradition-
al disciplinary lines. It is the concern of all departments, all courses,
all teachers. It is presented here not as an addition to what they now
do but as a constant dimension to be highlighted.

Thirdly: although we have sought later in this report to support
the development of critical thinking with specific proposals, we are con-
vinced that fundamentally such development is fostered more by fine teach-
ing than by curricular organization. Indeed we would hope that such dis-
cussion as arises out of our proposals will serve to clarify our common
ideal as teachers and provide occasion for self-evaluation and reform.

Fourthly: we are not suggesting that some such intellectual ideal
is not already the focus of much of the educational endeavor of this Academy.
We are however suggesting that such ideals are not always conscious or
expressed even when operative and that a clear articulation of them can
only be of benefit to us all and to those who will seek to join us. We
also wish to suggest that such ideals are not sufficiently visible in the structure of the curriculum and do not sufficiently guide the requirements made by the school of its graduates.

Finally we do not wish critical thinking to be thought of as a stage of intellectual development, the attainment of which would be required for graduation. We conceive of it rather as a dimension of thought ever present in the activity of mind varying only in the degree of its development. We would not pretend that our students are devoid of it at matriculation nor can we demand of them that they have scaled its heights before graduation.

In adopting the development of critical thinking as the aim of our academic endeavors then, we are making a statement about the aim of education as a whole. It remains to be determined at what level of development of this ability we wish to see our students graduate to tertiary educational institutions, how the attainment of this level should be promoted and how tested.
II. THE ANDOVER DIPLOMA PROGRAM

A. Standards and Requirements

It is the task of this committee to formulate proposals which will ensure that the curriculum of Phillips Academy will provide the quality and flexibility necessary to educate with distinction a diverse student body in a period of financial stress.

While "critical thinking" provides a powerful unifying principle, the Andover curriculum will continue to be concerned with other intellectual skills and traditional bodies of knowledge. Our concern is to maintain our standards of academic excellence, while improving our pedagogy and flexibility. For this reason we feel that the school should focus more consciously on the abilities it seeks to develop in its students and less on material covered and time spent.

We propose that in order to graduate a student be required to demonstrate:

1. ability to write clearly both expository and non-expository prose with emphasis and a sense of style
2. ability to read both literary and technical texts with understanding
3. some understanding of and ability to use the non-natural, symbolic language of mathematics.
4. some understanding of and ability to use scientific processes and method
5. some understanding of and ability to use the languages of the plastic arts, music and drama
(6) a sense of history and some skill in investigating, ordering
and evaluating historical questions and evidence

(7) some understanding of a culture not his own and ability to
interact with it on its own terms.

(8) ability to think critically.

Students would be expected to develop these abilities in courses
which in title and content would resemble those now listed in the curricu-

lum. What is at stake here is not material but method in teaching. Although
we do not advocate the exclusive study of these intellectual skills, we
wish to see a greater consciousness on the part of both students and faculty
of the processes involved in different forms of inquiry and a recognition
that such skills do not develop automatically through exposure to any pre-
determined quantity of content. Since time is limited, coverage of mate-
rial may sometimes have to be sacrificed in favor of the development of
skills. Professor Arnold Arons expressed it clearly when he wrote:

"In order to cultivate the development of the reasoning
capacities we have listed, it is necessary to give students
time, explicit help and encouragement, and repeated prac-
tice in all subject matter areas. It is also necessary to
to enhance their self-consciousness by leading them to stand
back and examine in their own words the reasoning process
in which they have engaged. When this is conscientiously
done, even if it be at the expense of "coverage" of subject
matter, it is readily observed that students develop an
entirely new intellectual stance, characterised by a height-
ened respect for their own intellects and by pride of achievement.
In consequence they begin to be conscious of the speciousness of the rewards they received in circumstances in which they were driven to memorise without understanding, and they are motivated to attack still more demanding areas of inquiry without giving up readily on encountering difficulties or temporary frustration. In other words, to quote Justice Learned Hand's ironical phrase, they become "willing to engage in the intolerable labor of thought—that most distasteful of all our activities."

Clearly in any such curriculum the standards and criteria of assessment are of cardinal importance. We propose that those standards and criteria concerned with the capacities listed above under numbers one through seven be determined by departments and divisions in conjunction with the Dean of Studies. We do not believe that it is within the competence or the charge of this committee to be more specific. We do believe firmly, however, that where feasible this determination should be made interdepartmentally, given that the capacity in question may be developed in a variety of contexts. In particular reading and writing skills and the ability to interact with a foreign culture might be achieved in settings which cross departmental lines. To recognize this and plan accordingly would not only increase flexibility but would also improve both faculty cooperation and individual teaching. Clearly the development of critical thinking is also interdepartmental in character. In fact it is intended that such development be a conscious aim of all teaching at the Academy. We will speak in more detail of its assessment under the heading of the General Seminar and Examination.
Finally we propose that standards and criteria be established at two levels: diploma and advanced. The diploma level would represent what might reasonably be expected of a graduate of Phillips Academy. The advanced level would be equivalent to that demanded by Advanced Placement Examinations. We make this proposal with a view to the complementary programs considered in part III of this report.

B. Length of Time

In the preceding section we deliberately avoided focusing on issues of time. We did this in the belief that credit counting on a basis of time spent is not an effective gauge of intellectual growth. Such issues cannot be avoided for long however. In the first place we must recognize that our students are in the second phase of their formal education, already possessing elementary levels of ability and intending to further their skills beyond what we can offer. In the second place the time spent at Andover frequently has its most immediate impact in dollars on the families which we serve, even if its results are of more lasting significance.

We are convinced that the actual cost of an Andover education will continue to rise for the foreseeable future, despite every attempt to conserve energy and eliminate what "frills" may still exist in the budget. We are likewise of the opinion that Andover can continue to attract the bright youngsters it serves best, without sacrificing quality, if it offers them and their parents a lean and challenging diploma program.

It is difficult to determine exactly how many Andover students could complete the subject requirements of the present diploma by the end
of the eleventh grade. Clearly many could but there is at present no incentive to do so, since the overall credit hour requirement is generally sufficient to keep them here to the end of the fourth year. Students therefore continue to the upper reaches of the curriculum where the fare is rich and stimulating but overlaps into a considerable degree with college curricula. It seems to us that our responsibility as a school is to decide what a graduate of the Academy must know and be able to do at the secondary level, test for such competencies and grant the diploma as soon as the expected level of achievement is reached, without regard for time spent. We view the sacrifice of length of attendance to the performance-based program described here as the best way to preserve the availability and high quality of an Andover education.

Some may say that those whose academic preparation is weak will be disadvantaged by such a program. It is certainly true that the later the point in the high school continuum at which such weak students enter, the more likely it is that some extra time will be needed. However we believe that many of the students who meet the overall Andover entrance requirements (which remain unchanged) can complete the diploma in three years if they enter by the end of the eighth grade. For those few who show potential but need an initial boost we recommend that the Academy organize and run two summer institutes: one in English skills and one in basic mathematics. For others the path to the diploma might be speeded by making possible enrollment in some intensive study courses offered by the Academy.

We therefore propose that the curriculum be so devised that students with adequate preparation entering at the end of the eighth grade may graduate within three years if able and inclined to do so. We further
propose that his principle be used, mutatis/mutandis, for students with adequate preparation entering from higher grades. We recommend finally that the Academy develop a new post-graduate program based initially upon Advanced Placement courses. In this way our most able students will have the choice of (1) moving directly to college upon graduation, (2) working or pursuing a project of their own devising for a year and then entering college with their peers, or (3) staying at Andover for an additional year during which they can earn Advanced Placement credit toward advanced college standing.

More will be said of this post-graduate year in section III of this report. It is worth noting here however that such a program would provide the opportunity for faculty to continue to teach advanced courses, despite the shorter diploma path our most talented students might take.

C. Quality of Time

We are concerned about the quality of the time spent at Andover and its effect on our academic pursuits. For the most part we, the faculty are too fragmented in what we do. We commonly have three and sometimes four preparations. We coach and run dorms. We serve on committees, hold office hours and counsel students. Most of us would not want to give up many of these things. They are part of the attraction of teaching at Andover. However, most of us would like to reduce our load so that we could be more effective at what we do. Our students are also often overstretched by academic and extracurricular commitments to the detriment of of their education and their emotional and sometimes their physical health.
We therefore recommend (1) that the normal academic load carried by a student should be four courses. For good reason, however, the course load might be more or less as determined by the student's general ability, athletic and/or extracurricular commitment and the demands of the required curriculum.

(2) That the total length of classroom and preparation time allocated to each course be increased by 20%. For example, presently some courses meet in four 50-minute class periods per week with one and a quarter hour preparation allotted to each period. We recommend that such courses be allotted ten hours per week.

(3) That such allotted time be divided between class and preparation time as each department and the individual instructor see fit. One two-hour class meeting with eight hours of homework might be desirable for some courses involving students who are capable of doing much independently, while eight hours in the classroom with two assigned hours of language lab work might be appropriate for a beginning language.

Flexibility of scheduling is of obvious importance for any such scheme and for that reason the curriculum committee recommends a revised daily timetable. Greater flexibility would be acquired

(1) by using the whole day as possible class/athletic/extracurricular time, thereby making 57 hours available for scheduling per week instead of the present 37 hours

(2) by extending meal hours so that lunch would envelop three class periods

(3) by scheduling athletics each term at arena day and by having athletics meet morning, afternoon and, when necessary, evening
(4) by requiring fewer courses and offering more sections of each.
(5) by requiring only three meetings per week (six hours total) of intramural sports or activities.

We feel that the adoption of the new daily schedule, the "new" trimester course and the four-course "normal" load for students will ease the load and decrease the fragmentation of many members of the community. Normal faculty load could be reduced to three courses instead of four and a reduction in the number of our athletic offerings could well reduce the coaching commitment by faculty. Also the new daily schedule should give everyone, students and faculty, a more relaxed day.

Finally we propose that some informal system of assessing the extracurricular work load of students be devised. A tremendous amount of constructive activity takes place in "The Phillipian" room, WPAA, the Art Center, the Music Building, the athletic complex and in many other places. These endeavors are not often recognized and frequently not allowed for in a student's schedule. We do not propose that credit be given for these commitments but we wish that some informal system be devised to serve as a guide to House Counsellors, Academic Advisors and others in advising students, bearing in mind each student's ability and energy level.

D. The General Seminar and Examination

As critical thinking is a dimension which may be present in all thought, so it may be developed in all branches of study and we sincerely hope that it will be pursued by all departments.

However, as it also provides the central focus of the curriculum
we propose that our diverse efforts be brought together in a final unifying exercise to be called the General Seminar and Examination.

We recommend that the Dean of Studies establish in conjunction with all departments a standard of general competence to be required of all graduating students. Such general competence would be a measure of a student's ability to investigate an intradisciplinary topic, to retrieve and order information and to make reasoned judgements and decisions concerning it with an awareness of the standards and limitations built into the student's own concepts, media of expression, modes of investigation, models of explanation and criteria of evaluation.

We recommend that each diploma candidate be required to take a capstone examination as a test of the ability to think critically in an interdisciplinary context. The General Examination would use "problem" questions of broad scope which could be handled equally well—or badly—by students with widely different discipline backgrounds.

We propose that this examination be both oral and written for two reasons:

1. to promote oral presentation of facts and ideas, a skill required by both college and business worlds. Though written work of varying lengths and complexity is a well engrained tradition at this school, oral work is not. The Academy at present gives its students inadequate preparation in this important area and we recommend that efforts be made to correct this deficiency.

2. In order that the examination may provide both a general standard and a more personal test of ability.

Preparation for the General Examination would be provided by a
General Student/Faculty Seminar. Every student who planned to take the General Examination that year would enroll at the beginning of the Winter term in a seminar with eight or nine other such students and three faculty. Each seminar group would meet once per week for a two-hour period throughout the Winter and Spring terms and would be taken in addition to the "normal" four-course load. A Seminar Committee annually chosen and composed of faculty and students would choose the general topic for the seminar for that year and would select a number of required texts. Each seminar would read and discuss the common texts but might choose additional optional texts for its discussions. Each seminar would also select the question which would constitute the oral part of the examination. With preparation of this kind no student should feel panic at an oral examination and each seminar would be responsive to its own members' intellectual interests.

In contrast the written part of the General Examination would be administered to all students thus providing some standardization. A committee of faculty, five in number, would be selected for a tenure of three years, but with provision for continuity in its initial composition, to develop and administer the written examination.

All adults in the community would be invited to participate in the seminars. Lecture topics and speakers for the year would be chosen to complement the seminars and in this way an exciting opportunity for learning would be provided for the whole community. Two examples of possible seminar topics are to be found in the Appendix to this report.