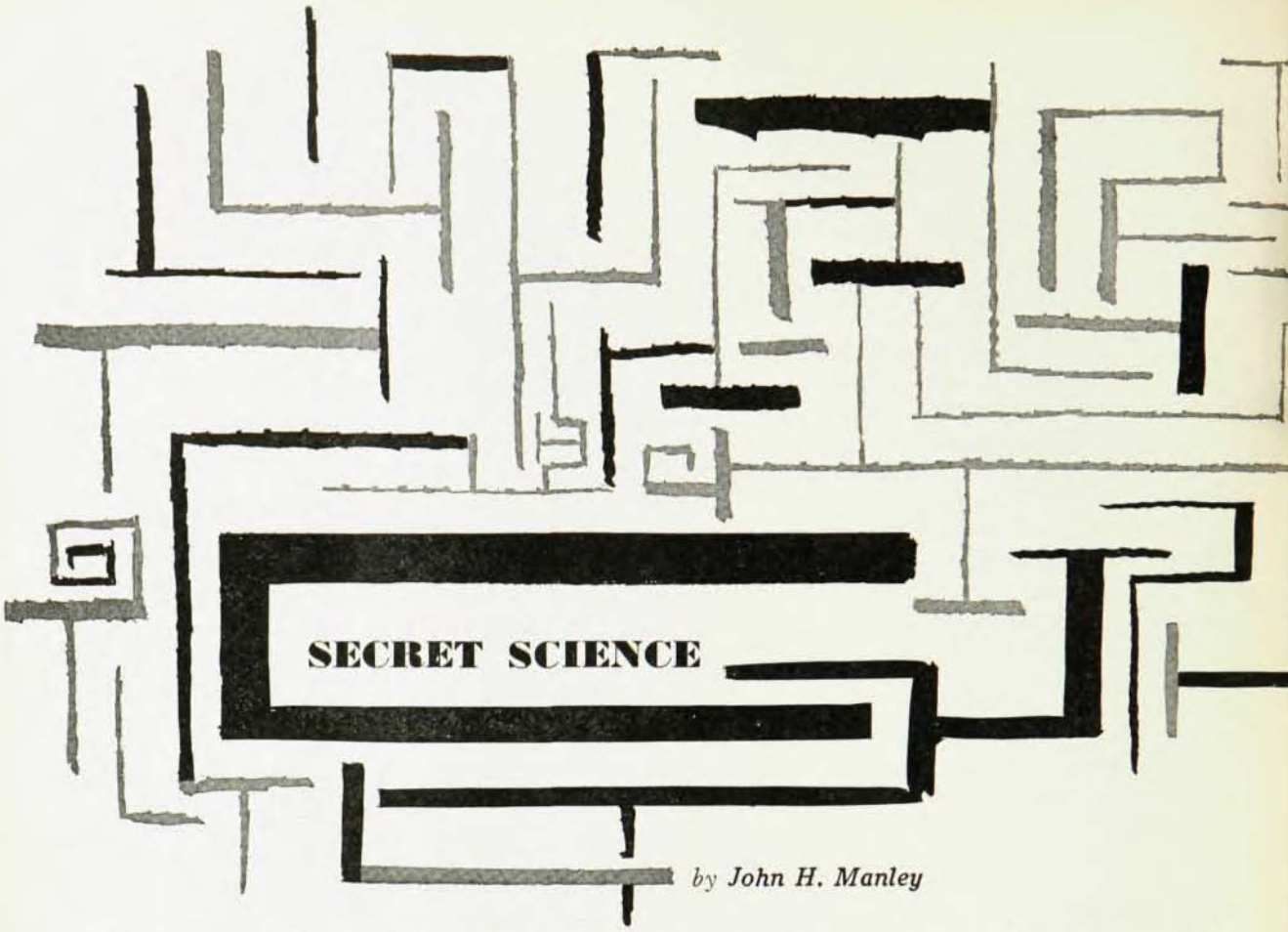


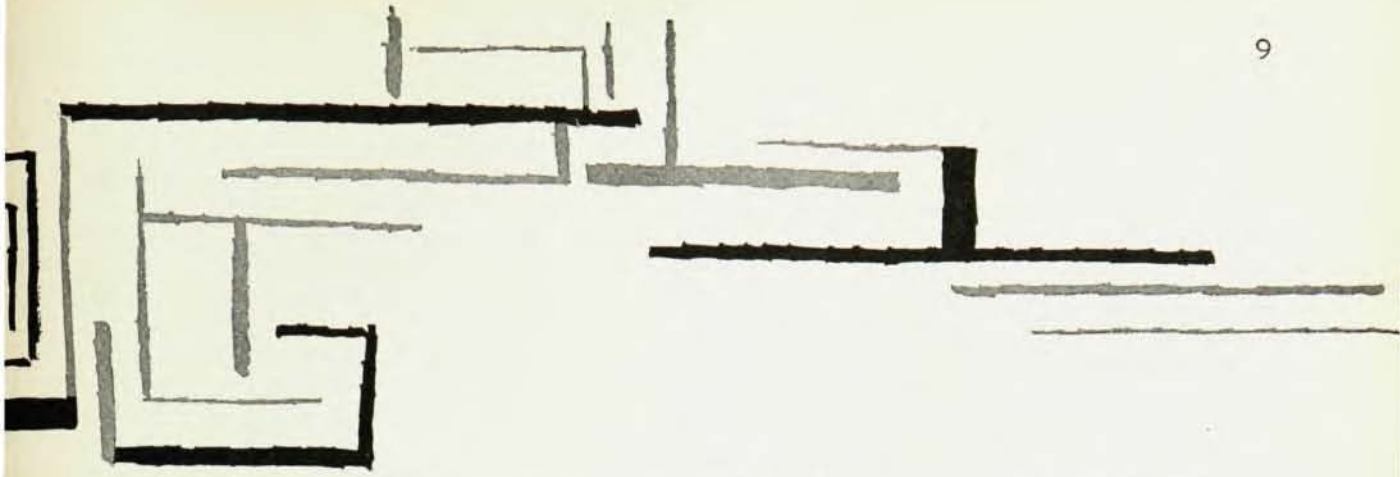
by ***John H. Manley***

The tug-of-war between requirements for security controls over scientific information and need for the kind of openness that will permit scientific progress has in the atomic energy program been refereed by scientists themselves. For those who have had to stand by helplessly while their papers were being digested by the complex machinery of the "declassification program" the following article may make the process seem less mysterious and aggravating.

Science has been a traditionally open subject, and as such it has played an important role in fostering friendly relations between men of all nationalities through their common interest in scientific matters. Free exchange of information, criticism, and comment has been a real and vital part of scientific tradition throughout the world. This is no longer the case. In this country and abroad considerable portions of biology, chemistry, mathematics, medicine, metallurgy, and physics are advancing in a secrecy imposed by law. Restrictions are placed on discussion not only of basic scientific information but also on many associated technologies which play an important role in shaping thought on matters of national significance.

Few will today dispute that secrecy in science and in the public mind has come to be very largely associated with atomic energy activities. It is also in this field that the problems of information control have received considerable examination. Unfortunately, however, the public has scant knowledge of the results of this examination in terms of the evolution of policy and procedures. As a consequence one hears discussions of the subject of secrecy with scarcely more content than the elaboration of some scientist's thesis that secrecy is the root of all evil, or that of a congressman to the effect that "scientists are fisherwomen in their desire to talk".

More than four years of attention have been devoted to some of the questions involved in the release of atomic energy information. This should provide a basis for a greater understanding of the particular problems involved if the conclusions and



their development are accessible to examination. Of several reasons why they are not, two may be mentioned. First, most of the historical background and some of the present policy have hitherto been available only to those with access to secret information. Second, it is not possible to define accurately what information is to remain secret without making undesirable revelations in the definition itself. Nevertheless, an approximate indication of the type of information which is regarded as secret should be permissible. In fact, an account of the considerations which have had a bearing on the control of atomic energy information furnishes both a historical perspective on which to base future discussion and an indication of the nature of information which is still regarded as secret.

The Tolman Committee

One cannot achieve such a major technical and scientific objective as that of a chain reactor or an atomic bomb without creating a tremendous amount of scientific and lay curiosity about the underlying principles and the details of their application. As a first step in satisfying this natural inquisitiveness the Smyth Report was prepared and released shortly after the announcement of the first military use of atomic energy. It was obvious, however, that this report would not be adequate, nor could the continuing problem of release or retention of information be handled by a simple limitation to the content of the report. Such would be neither desirable nor feasible. To secure advice on this problem, Major General L. R. Groves, as Commanding General of the Manhattan District, appointed on November 2, 1945 a Committee on Declassification. This committee consisted of Drs. R. C. Tolman, chairman, E. O. Lawrence, A. H. Compton, H. C. Urey, F. H. Spedding, R. F. Bacher, and J. R. Oppenheimer, with Lt. Col. J. R. Ruhoff as nonvoting secretary. It may be noted that scientists of repute who played an important role in the project were chosen for this committee. In addition, a subcommittee to make recommendations concerning information on biology and medicine was appointed. It was composed of Drs. S. L. Warren, chairman, R. S. Stone, Andrew H. Dowdy, Louis Hemplemann, and Joseph Hamilton. This declassification committee and its subcommittee were asked by General Groves to make recommendations on: the extent to which information obtained on the work of the Manhattan Project should be declassified; the detailed rules to be followed in such declassification; the extent to which information on the work of the Manhattan Project remaining classified might be released to qualified individuals and organizations; and the detailed rules to be followed in such releases.

The committee submitted its first report on November 17, 1945. This report was the foundation of declassification policy and to a major extent remains so today. It therefore warrants extensive quotation wherever possible, especially where it forms the basis of policy or defines types of information. The outline of policy is given in a section entitled "General Philosophy of the Committee" and is quoted as follows:

In accordance with your directive the Committee has considered the effect of release of information both on the national welfare and on the national security. In the interest of national welfare it might seem that nearly all information should be released at once. In the interest of national security a superficial consideration of the problem might lead to the conclusion that very little information should be released.

It is not the conviction of the Committee that the concealment of scientific information can in any long term contribute to the national security of the

John H. Manley, a nuclear physicist at the Los Alamos Scientific Laboratory, received his doctorate from the University of Michigan in 1934. He has been closely associated with the atomic energy project since 1942 and has been involved in the AEC's declassification program since its inception, both administratively and as the author of papers being run through the mill.

United States. It is recognized that at the present time it may be inevitable that the policy of the Government will be to conceal certain information in the interest of national security. Even within this limitation there are many matters whose declassification would greatly help the progress of science without violating that policy. If we are looking to the national welfare or national security as they may be two decades from now the Committee has no doubt that the greatest strength in both fields would come from a completely free and open development of science.

Thus, the Committee is inclined to the view that there are probably good reasons for keeping close control of much scientific information if it is believed that there is a likelihood of war within the next five or ten years. It is also their view, however, that this would weaken us disastrously for the future—perhaps twenty years hence.

Following this statement the committee considered various criteria to be applied in the consideration of the declassification of information for publication. It was recognized that judgment would always be involved in weighing positive criteria arguing for open publication of information against negative criteria arguing for retention in a secret, classified category accessible only to a limited class of individuals. The positive factors or criteria, by definition, would be represented by information which (a) was already substantially known outside the Manhattan Project, or (b) was readily obtainable by theory or minor experimentation, or (c) would advance the national position in science or technology generally or in specifically nuclear areas either military or nonmilitary; the negative would involve information whose release would jeopardize or weaken the nation's military or international position. Declassification would thus be a positive result of the consideration of any particular information in the light of these criteria. It was also specifically noted that the relative importance of any such criteria would change with time as declassification experience is gained, as the state of general knowledge changes, and as the international situation changes.

Classes of Information

In order to be able to apply these criteria in a more definite fashion, the committee considered three categories of information arranged as to whether positive criteria clearly outweighed the negative, whether there was a fairly close balance, or whether the negative clearly outweighed the positive. In slightly paraphrased form the categories or classes were defined:

Class I. Information recommended for immediate declassification. This class was to include basic scientific information which has little direct application to problems of production of materials essential to the release of atomic energy or their military utilization.

Class II. Information conducive to national welfare and long term national security but which also has a direct bearing on production or military utilization of nuclear energy. The date of declassification of such information should depend on estimates of the trend of international events.

Class III. Information not at present recommended for declassification and whose declassification should await a real reduction in the threat of atomic warfare. (This class was to include information of immediate application to military utilization which, for the most part, has little application to the development of science or peacetime utilization. Also included was such information as production capacity, present output, stockpile of materials, stockpile of weapons, etc. These were included in this class "in order to reserve to the President and the Congress a formulation and disclosure of national military policy".)

A very definite distinction between *Class III* information and the other two categories is evident. This distinction applies not only to the type of information but to the method of considering its release. As will be seen, *Class I* and *Class II* will be considered by project authorities, but the recommendation for *Class III* involves other agencies of the government. How consideration of such information was to be obtained was not stated and even today remains obscure. Cases which have reached public attention are not helpful in describing location of responsibility or the nature of procedures for complying with this recommendation. Senator McMahon's proposal to discuss the wisdom of release of stockpile information was rapidly squelched by a presidential remark. For a long time the H-bomb issue remained, perhaps remains, singularly unilluminated by official statements. After additional description of the development of policy and procedures for all types of information, the present apparent mechanisms for control of *Class III* information can be described.

Types of Information

Before proceeding to an assignment of types of information to the three classes in more detail, the

committee found it convenient to designate a dozen or so materials as "classified substances". This list included most of the elements of atomic number of 90 or above and certain additional substances of particular significance to the development of the project. By considering individually the chemistry, metallurgy, physics, nuclear physics, or technology of each of these substances and the role played by each it was possible to make an assignment to *Class I*, *II*, or *III*. By and large, the chemistry, metallurgy, and physics of these substances were placed in *Class I*. The greater portion of the nuclear characteristics appeared in *Class II* and technology wholly in *II* and *III*.

It would involve far too much detail to be either interesting or relevant to our purpose if the work of the committee on the assignment of information to classes were fully described since six general types of information were considered. (These were: general information such as that relating to basic science, instrumentation, etc.; information relating to the electromagnetic separation process; information relating to the diffusion separation process; information relating to plutonium production; information relating to the military utilization of atomic energy; and medical information.) Under each were numerous topics distributed in *Class I, II,* or *III*. For illustration, however, several examples may be given of the general grouping of topics arrived at by the Committee:

Class I.

A. A wide variety of instruments and techniques of general utility unless specifically and uniquely relating to production of essential materials or their military utilization.
B. Fluorocarbon and fluorine chemistry and manufacture. This item was recommended for release because of its great importance to industry.
C. Elementary chain reactor theory and general characteristics of small reactors—recommended to stimulate the understanding of the elements of chain reactors and possibly the construction of small units.
D. Fission product chemistry and physics.
E. All medical research and health studies including information obtained from Hiroshima and Nagasaki, unless such information for other reasons is not declassifiable.

Class II.

A. Nuclear characteristics of certain critical isotopes.
B. Theory and operation of units for the production of essential materials.
C. Theories of weapon efficiencies.

Class III.

A. Stocks and reserves of classified substances.
B. Weapon design, behavior, and use.
C. Production data on fissionable materials or information from which inferences could be made.
D. Key technological achievements (these were spelled out in detail).

To a much greater extent than can be obtained from the above outline, the reader of the complete report is impressed with the adherence to the general philosophy and the recognition by the committee that national welfare and security cannot be obtained by an uncritical attempt to prevent publication of information. Undoubtedly, each member had first-hand, wartime experience of terrific pressure to fill gaps in the scientific and technical knowledge necessary to achieve the goals desired—gaps which existed in spite of a high national level of prewar achievement in science and technology. The committee felt, quite inevitably, the absolute need for continued progress in knowledge, in experience, and in numbers of trained individuals. This progress can be obtained only through a vigorous and healthy development unstifled by a narrow view of secrecy and security.

Implementation

Although it was not specifically included in the directive to the committee, the members evidently attached considerable importance to an appropriate mechanism for declassification. The passage of time has modified the committee's proposal somewhat, but the underlying principles remain the same. These involve:

1. A declassification guide which, in order to secure uniformity with respect to application of policy, spells out in some detail the type of information which may be considered for declassification and the type which should be retained.
2. Assumption of responsibility by the directors of project laboratories or other organizations that information recommended for release is not contrary to the guide.
3. Submission of the information to one or more responsible reviewers for a detailed check in terms of the guide, these reviewers to be appointed from the personnel of the major project laboratories with the concurrence of the director. The reviewers are

to assume full responsibility for their recommendations, but are encouraged to make use of assistants or advisory committees if necessary. They are also instructed to make certain that a recommendation does not adversely affect the government's patent position.

4. A central declassification office which has the authority to act on the recommendations of the directors and reviewers and the obligation to "make sure that the mechanism of declassification functions promptly and efficiently and on the basis of an over-all view to make sure that appropriate material in all fields is declassified as expeditiously and completely as possible in order to secure the maximum benefits to be derived from its wider use".

Declassification by Fields

On January 20, 1946 the committee submitted a second report which, among other matters, expressed opinion on the following policy matters:

1. That in a few carefully selected areas certain specific fields can be declassified as entities.
2. That declassification of nontechnical documents should be handled by the organization director and the central office, omitting approval by a responsible reviewer.
3. That declassification for publication or for application in industrial operations should take priority over declassification of miscellaneous old material for convenience.
4. That security manuals dealing with classification be kept consistent with declassification policy; this responsibility to be that of the central declassification office.
5. That the question of association of information with units of the atomic energy program be carefully considered by the directors and the reviewers.
6. That the central declassification office should take the initiative in requiring organization directors to submit material if it is properly declassifiable and of value and interest to science and industry.
7. That information once declassified be made accessible to everyone and that a definite publication and patent policy be formulated.

The first point of this second report warrants special attention. It must be kept in mind that the problem facing the committee was that of disposition of information accumulated under the aegis of the Manhattan District. The committee was at no time attempting to establish policy with respect to *all* scientific matters but only in those areas which were or are active in the atomic energy program. This point has the special significance that even in this area certain specific fields could be declassified as entities. It was, however, very difficult to put this recommendation into effect. In the postwar period there was a remarkably rapid growth of a panicky attitude in many quarters expressed by opinion that complete secrecy should be imposed on anything remotely connected with "the Atom". Such opinion had little respect for the degree of association of any information with actual atomic energy activities. This influence was such that not until September, 1948 was there an official recognition of unclassified areas of research. It is worth noting, therefore, that throughout the committee's deliberations there was a tacit assumption that many large areas of scientific and technical endeavor having no direct contact with atomic energy development should remain untouched by rules of secrecy.

The "Guide" and a New Committee

The recommendations of the committee were approved by General Groves on March 12, 1946, the Secretary of War was so informed three days later, and under the date of March 30, 1946 the first declassification guide was distributed to the personnel of the operating system. On May 1, 1946 a manual outlining the procedures to be followed for the declassification of scientific and technical information was distributed.

Although the Tolman committee submitted a third and last report on June 21, 1946, it was clear that this committee, in view of the many other personal duties of its members, could not continue as a permanent committee for review of declassification policy and operation. At the same time the operation of the system revealed weakness and disclosed matters which required clarification of the guide in order to obtain more uniform interpretation. As a consequence, General Groves on July 31, 1946 outlined the duties and responsibilities of a "Committee of Senior Responsible Reviewers" and the members of this committee were appointed. The committee was chosen to represent the major phases of the project: plutonium project, Dr. W. C. Johnson; electromagnetic process, Dr. R. L. Thornton; diffusion process, Dr. W. F. Libby; weapon project, Dr. J. H. Manley. Dr. H. A. Fidler of the declassification office was named secretary. (Dr. Fidler subsequently became chief of declassification under the Atomic Energy Commission and Dr. F. de Hoffmann replaced him as secretary. At the beginning of 1949 Dr. Manley resigned and Dr. J. M. B. Kellogg, of Los Alamos, was appointed to fill the vacancy.) From the time it was established through July 1950 the Committee met formally fifteen times.

Its members have also been named as United States delegates to four international conferences with scientists of the United Kingdom and Canada to discuss common problems of control of the information to which the three countries contributed jointly during the war years. In addition to actions in meetings the members are continually called on to consider papers in their respective areas of specialty and matters of general concern which must be decided by a membership poll of opinion during the time between meetings.

The committee does not rely wholly on its own judgment in these matters but is assisted by a number of standing and ad hoc subcommittees. These include a subcommittee on chemistry and metallurgy, composed of Drs. E. R. Jette, A. R. Kaufman, W. M. Manning, C. J. Rodden, G. T. Seaborg, C. S. Smith, F. H. Spedding, J. A. Swartout; a subcommittee on theoretical nuclear physics composed of Drs. H. A. Bethe, F. de Hoffmann, F. C. Hoyt, G. Placzek, A. M. Weinberg; and a subcommittee on reactors composed of Drs. L. Borst, H. Brooks, P. Gast, D. Hall, F. C. Hoyt, E. J. Murphy, and A. M. Weinberg.

Some Intangible Limits

In the course of consideration of particular papers as well as general topics, certain bounds within which debate takes place can be recognized. Even though it may not be possible to resolve a difficult case by recourse to such general principles, they warrant mention as indicative of the kind of consideration which frequently arises.

Association has already been mentioned (recommendation 5 of January 20, 1946) as an instance in which the origin of the information may add to its significance. On the one hand, it is possible to argue that the interest of a particular laboratory in a certain type of information may reveal the nature of developments in this country, whereas the same information, unassociated, may well be attributed to scientific curiosity rather than having its origin in a systematic, programmatic exploration. On the other hand, if it is of value to a rival, which is the concern, it may be maintained that information can be of value quite independently of its origin and that it is a mistake to underestimate a rival by believing that he requires the association in order to recognize the value. This sort of consideration frequently involves the assumption that another nation would proceed along lines very nearly the same as those in which our effort has been and is directed, an assumption which is difficult to prove or disprove since so many factors, technical and nontechnical, are involved.

In addition to association of information with a particular laboratory it may be associated with the name and position of an individual and thus carry a different implication than unassociated information. If the information is classified and accurate then its unauthorized release constitutes a clear infraction of the rules and, presumably, law; if it is classified but inaccurate it may raise a knotty problem: when do inspired guesses outweigh the uninspired, each suitably weighted by the stature of the individual, and create a situation in which it is no longer worthwhile to retain the information in a restricted category? Obviously not only technical knowledge is required on the part of those debating such questions but also an integrated opinion on the current state of public statements and releases.

Somewhat related to the matter of association is the thesis that the whole is greater than the sum of its parts. It has been maintained, for example, in connection with the publication of the National Nuclear Energy Series, that a compilation of information in one volume or in one place is more damaging than the scattered release of the same information. True, it may make life easier for the rival, but, on the other hand, a reasonably active competitor should be quite willing to spend some effort in making a compilation for himself.

It is often too easy to spend time in frequently fruitless debate on the degree of accuracy which may be permitted of, say, a classified nuclear constant. Suppose there exists a preproject value of some such constant good perhaps to ten percent; should one, then, retain classification of a project value good to two percent? Further, can the association of such a number with project work make it less desirable to release on the ground that the association indicates an officially accepted value?

Since the value of information to nonproject scientists is, in many cases, a strong argument for declassification, the extent of this value is often a matter which determines the balance between release for publication and retention. The factors affecting the balance may in some cases become quite involved. In the case of chemical and physical information on plutonium, for example, one point of view would argue that since the material is not readily available there is no point in releasing such information; the other view would be that this knowledge of a particular element is but part of a whole and may result in a useful synthesis of a larger collection of facts of nature by a nonproject worker. In this latter case benefit would accrue to

both project and nonproject workers and release would contribute to security through progress. The balance, then, involves judgment as to the usefulness of particular information in a very general way.

There is a rather wide general agreement that certain information should presently remain "the central core" of classified material. Around this, however, there is an area whose breadth is a definite function of individual opinion. If, for example, certain information is obtainable as a series of steps, each piece perhaps not in itself warranting classification but each contributing to the final result, then how much should be included in this "buffer area"?

These considerations and questions surely indicate the necessity for the most complete understanding possible of the technical information itself, the policy governing the control of information, and the influence of circumstances in altering such policy. No single individual can possibly be sufficiently knowledgeable to pass judgment on all facets. Especially in matters of policy, the judgment of those who have official responsibility must be supplemented by that of informed lay and scientific persons.

Information Control vs Openness

The Atomic Energy Act of 1946 established additional background for the control of information. Its first purpose is to provide "a program of assisting and fostering private research and development to encourage maximum scientific progress". Its second purpose is to provide a program for the control of scientific and technical information guided by two principles. On the one hand the necessity for openness was recognized by stating that dissemination of information "should be permitted and encouraged so as to provide that free interchange of ideas and criticisms which is essential to scientific progress". On the other hand, this openness was proscribed by specifying that until certain conditions are met "there shall be no exchange of information with other nations with respect to the use of atomic energy for industrial purposes". The meaning of "exchange", "use", and "industrial purposes" involves legal discussion beyond the scope of this article. In practice it is apparently this principle which provides the basis for retaining information in classified categories. It has also been invoked, so far unsuccessfully, in questioninig the legality of distributing isotopes to other nations.

By and large, since the passage of the Act and the establishment of the Atomic Energy Commission, there have been no substantial modifications of either policy or procedures. Until very recently, the problems of control of information of the *Class III* category have not been considered in any detail. There have been speeches and articles stressing the need for dissemination of information on atomic energy matters and to some extent efforts directed toward meeting that need. There have been, however, noticeably few attempts to contribute to general understanding of existing policy on information control, though recent releases are suggestive of greater attention to this subject.

Declassification Policy in Action

Omitting some classified decisions pertaining to restricted scientific data, what can be said in summary of the developments of the past four years?

Under the date of September 17, 1948 (and partially revised March 2, 1950), the Atomic Energy Commission issued an "Official Use Only" bulletin (GM-93) on unclassified areas of research. This bulletin "recognized that there is a considerable amount of scientific and technical work which does not come within the categories specified by the Atomic Energy Act as restricted data and which is normally performed on an unclassified basis" and stated that "it is, of course, intended that, where appropriate, such work shall be done on an unclassified basis". The official in charge of a commission laboratory or contract was given authority to release information without recourse to the declassification system in certain specifically defined cases. In the main, these cases were those of *Class I* of the Tolman committee with the exception of theoretical work relating to the fission process, weapons, or reactors where such work does not reveal information on which declassification is forbidden, and with the addition of the chemistry, physics, and nuclear physics of most of the elements of atomic number less than 90. This action at first sight was simply a less formal procedure for declassification. It was much more than this. It was a step away from the irrationality, not instigated by the Tolman Committee but through postwar fear psychosis, that anything connected with the atom must be a closely guarded secret. It was the first official recognition that certain areas of science, perhaps somewhat related to atomic energy matters as much science is, could be born declassified and not be subject to an elaborate, post-birth formal cleansing. It was an initial attempt to free the worker in the field from the suspicion that his every effort should be classified at the start. In the main, the effect of this recognition has been to de-

crease the danger of centralized, bureaucratic control of information far removed from weapon data and to encourage interchange of ideas in this area. The Commission's Seventh Semi-Annual Report notes that of 1250 papers declassified in 1949 sixty percent were handled outside of the central authority.

In May, 1949 the Commission prepared a summary of its policy for the control of information in another "Official Use Only" paper. By and large, this paper reiterated the major points of policy previously in effect and the need for balanced judgment in weighting the positive and negative criteria for release of information. On the positive side the importance of public accountability was added. On the negative, it was set forth that one must consider not only information which might assist a rival program but also information which might be used by inimical interests to reduce the effectiveness of our own atomic energy operations, to increase our vulnerability to attack, or to limit the effectiveness of our armed forces or otherwise damage the United States. In commenting on this latter point it was remarked that judgment "will often depend on many factors of a nontechnical nature, such as, for example, matters related to military operations, civil defense, or international relations". It is possible to interpret both of these new elements of policy as a beginning of recognition of the importance to be attached to information which, while deriving from scientific and technical facts, must be handled in a broader context than that established for papers destined to appear in scientific and technical journals only.

In an unclassified bulletin (GM-160, revised May 8, 1950) a Manhattan District manual for declassification was rescinded and a summary of the Commission's procedures for subjecting classified information to review was given. Again, there was no significant departure from previous policies and procedures.

At this writing the most recent policy statement is contained in an unclassified paper, "Information Control Policy" which appeared in June, 1950. The dilemma between secrecy to impede a rival and openness to speed our own progress is stated, and some of the factors to be considered are listed. It is revealed that the Commission has laid down three fundamental principles as guides:

a. Weapons information, including design, production, and stockpiles, should be kept secret.

b. Basic science should be free except where it is directly related to weapons.

c. Until international control is attained, there shall be no information exchanged with other nations on the use of atomic energy for industrial purposes.

Of these principles *a* is certainly not new, and *c* is the provision of the Atomic Energy Act of 1946. On the other hand, *b*, if literally interpreted, is a significant step. In the past, some basic science and considerable technology has been kept secret because it related indirectly to weapons. For example, the large area pertaining to the production of fissionable materials by isotope separation or through the use of reactors is well filled with classified information. It will be of interest to follow the application of these principles and to note the degree to which the compatibility between *b* and *c* is resolved.

Following the above principles, the paper proceeds to list six different types of authors according to their employment and access to classified information, and the following three types of writings: technical articles of limited scope (Tolman committee *Class I* and *II*); general articles of professional or popular level discussing the work of the Atomic Energy Commission; general articles primarily concerned with the political, moral, or military aspects of this work. (The last two types appear to include and extend the Tolman committee *Class III* information.) In general, the position expressed is that an article of the first type should be submitted to the regular declassification procedure if the author or his editor has good reason to believe that classified information has been included. If the article is of the second or third type and written by an individual who has no access to classified information, the Commission has consistently refused to comment on the ground that the comment itself might reveal classified information. Similarly, the nontechnical parts of general articles even though written by individuals who may be connected with the atomic energy project are regarded as an area in which interference is unjustified. An exception to this policy may be made, however, for "administrative reasons" in the case of writings of full-time project people. In addition, if those who have or have had access to classified data are authors of articles which, though general in nature, relate to classified programs, then such writings should be submitted for review in order to obtain "the benefit of the extensive collective knowledge available to the Commission". The mechanism for obtaining the application of such knowledge is not described.

The Obstacle Course

It is not a simple matter to summarize the present situation completely. A technical paper con-

taining information of *Class I* or *II* or Commission *Type I* makes its way to declassification along a fairly well defined route. It is examined by technically trained reviewers in terms of its content and the detailed provisions of a secret declassification guide. Should it appear to be a borderline case, one or more members of the committee of senior responsible reviewers are asked to comment. In any event, it is finally either declassified or withheld for reasonably definite reasons by the Director of Classification who acts with the authority of the Commission's general manager. By contrast, a more general paper involving information of *Class III* or Commission *Type II* or *III* may have a rather different history before release or retention. The course which such a paper might take can be suggested by considering an example which would call into play every element of the course.

Let it be assumed that a full-time project person with access to classified information has succumbed to a desire to increase public understanding of some section of the widespread atomic energy business. He has prepared a general paper which has its roots in scientific and technical information but, since he is well acquainted with the information control policy from having technical papers declassified, he has studiously avoided the use of classified information. However, the paper does touch on classified programs—it can hardly do otherwise and have any content. Also, as a full-time employee, his writings are subject to examination "for administrative reasons". (Paragraphs 15 and 19, *Information Control Policy*, May 17, 1950.) The paper itself, to be of public interest, might well involve not only Atomic Energy Commission matters but military, political, and perhaps moral issues. A paper on the A or H-bomb might easily provide such an example. What, then, would be the route of this fictitious paper?

The first stop would be with the Office of Classification in order to obtain an opinion on the declassifiability of the technical information contained in the paper. Clearing that hurdle there remains the general question of the desirability of release in terms of Atomic Energy Commission operations, military considerations, national policy, and so on. Review by the Commission's Washington staff is clearly indicated. Such review may easily involve the Offices of Classification, of Intelligence, of Public and Technical Information and of General Counsel and the Divisions of Research, Production, Military Applications, Security, Reactor Development, Biology and Medicine. No specific action takes place from this review. The paper simply emerges with an impressive collection of attachments reflecting the individual wisdom of these sources. It is quite likely that serious objections will necessitate a change in content and form from the original, and one or more trips around this circuit. When the subject or the individuals are exhausted, the paper, with its attachments of comments and recommendations (incompatible ones for our example), proceeds to the level of the commissioners and general manager. Here it may be referred back to the staff with suggestions for change and/or to the several statutory adjuncts to the Commission: the Joint Congressional Committee On Atomic Energy, the Military Liaison Committee, the General Advisory Committee. The Military Liaison Committee may pass it on to an agency of the Department of Defense, and the Commission may desire comment from the State Department. Comment will flow in from all these sources and must be met in some fashion in order to secure final approval. Still there may be divergence of opinion, so the paper or perhaps an unreasonably distorted facsimile thereof is submitted to the President. He, of course, must be advised, possibly by the National Security Council or a Subcommittee thereof. After due consideration by interested branches of the Executive and consultation with representatives of the Congress, the paper may be released with appropriate authority, if it has not expired along the route. If it were fiction that such a course exists, the complexity could be viewed with humor. Unfortunately, this is not the case.

Development of science and technology in secrecy certainly frustrates the openness which has had such fruitfulness in the past. Development of public policy in the vital area of atomic energy in nearly complete ignorance of important scientific and technical facts certainly frustrates the open, informal discussions so essential to the democratic process. This cost is paid in the interest of national security. Future discussions, resting on an understanding of the development of present policies and procedures, can profitably examine the continuing questions of value and price.