

CONTROL OF INFORMATION RELATING TO ATOMIC ENERGY*

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IN the year 1633, Galileo was summoned by the Office of the Inquisition from Florence to Rome, there to submit himself to a catechetical examination by a court of Cardinals. The heresies of which he was "vehemently suspected" pertained to doctrinal matters, though scientific rather than religious or political. Galileo had advocated and extended the forbidden cosmology of Copernicus and had, in effect, discredited the "official" cosmology of Ptolemy.

The outcome of this historic event is well known. Galileo was forced to abjure his heretical opinions; but the Inquisition treated him "with a consideration unexampled in its history" and the punishment inflicted upon him was comparatively mild. Science had all but won that freedom which it was shortly to attain, and which it was to enjoy in increasing measure for two centuries while it grew powerful in influence and opulent in prestige.

In the main, this freedom was established as a by-product of the process by which other freedoms—of religious worship, of speech, of the press, of assembly—were won. The crucial battles were fought on other fronts, and the freedom of scientific communication emerged as a natural corollary of the general principle established in this struggle—that neither lay nor ecclesiastical authorities could impose their conformities on the conscience and critical intelligence of man.

By the middle of the nineteenth century the general cause of freedom seemed definitely won, and if the principle was not universally established, it was at any rate firmly in the ascendant. To be sure, there were interludes of shadow and eclipse. In the realm of science, facts, the "fortifications of reason", were not always sufficient bulwark against the forces of bigotry and reaction. But on the whole, progress

* This article is based upon material appearing in a forthcoming book by the author and Mr. Byron S. Miller to be published in the fall by McGraw-Hill-Whittlesey House Publishing Company, and entitled *THE CONTROL OF ATOMIC ENERGY*. The work was made possible through a grant from the Guggenheim Foundation.

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was steady, and the persistence of doctrines which aimed valiantly at the petrification of institutions and the fossilization of thought was viewed as a minor aberration certain to be corrected in time.

The rise of the fascist dictatorships ended once and for all whatever complacency we had on this score. The scope of their triumphs, the bitterness of the battle required to defeat them, the legacy they have left behind them, all warn us that freedom is not a gift which, once won, can be taken for granted.

Measures for the suppression of fundamental freedoms imposed with such ruthlessness and such efficiency by the fascist states were all justified in their philosophy by the transcendent importance of the nation. In a world reduced to a struggle to the death between competing national organisms, there was no room for the individual conscience, no excuse for personal dissidence, no reason but reason of state. Any dissent from the single will of the leader who alone divined the ultimate goal of the state was held to be weakness, and when nations must struggle ceaselessly for survival, weakness is fatal.

Amidst the general destruction of individual freedoms which this philosophy encompassed, scientific freedom was not spared. Science was dragooned and regimented and made to serve the master's ends. Scientists either made their terms with the state, or suffered expulsion or liquidation.

Indeed, when men believe the existence of their society to be at stake, no other fate for dissenters is possible. When the democracies embarked upon total war, the measures they felt it necessary to take in ordering science and circumscribing communication among scientists were scarcely less complete than those imposed by the fascists. In both world wars, the scientists of the United States, of the United Kingdom and of other democratic countries had to accustom themselves to work under regulations of secrecy in an atmosphere of darkness. This fact was brought out clearly in an address before the National Academy of Science by Sir Henry Dale, former president of the Royal Society of England:¹

“ . . . [I]n 1918, most of the scientists, like most of the warriors, returned joyfully to normal life and normal standards with the hope that such a call would never come again. When this hope proved vain, the call was for science and scientists as never before, to meet the new threat from an enemy who had already enlisted most of the science of his great nation in secret preparation for an attack on the world's freedom. And to meet this menace, we free peoples found ourselves obliged to submit again to the invasion of our scientific activities by secrecy, to a degree beyond any which had so far been regarded as possible. Secrecy percolated into domains which all

1. Pilgrim Trust Lecture: *The Freedom of Science*; Washington, D.C.; Oct. 22, 1946.

earlier wars had held sacred; so that we, for example, whose work was in the medical sciences found ourselves involved in an inconsistency, which still paid conventional respect to that immunity of medical equipment and personnel which a more scrupulous age had established, but compelled us, in the name of total war, to throw a veil of secrecy over the new discoveries which could make their work of mercy really effective. To all this and much more we loyally submitted. And now that science has done its part, and the war has been won, we look for the freedom that victory was to insure. Do we find it? Or do we find science still wearing its war-time fetters, in the interests of a right assumed for any nation, at peace, to make secret preparation for the destruction of its neighbors? . . .”

The melancholy observations of Sir Henry are completely justified by the information section of the Atomic Energy Act.² If the Act does not restrict the liberty of scientific thought, it without question abridges freedom of scientific communication. The controls on information were deliberately designed to regulate the interchange of scientific ideas; to prescribe when and how a scientist may publish or otherwise communicate the results of his work. And the penalties for violation of these prescriptions are drastic. The data whose communication the Act seeks to regulate are not exclusively technical and military in character, nor are they necessarily data compiled by federal workers utilizing federal funds. Even those data describing the phenomena and laws of the visible universe are under interdict; and even data independently arrived at in private laboratories are subject to control.

INFORMATION CONTROLS AND SCIENTIFIC PROGRESS: THE PROBLEM OF "SECRECY"

Scientific progress depends on the free flow of ideas—assured by the freedom to publish, to communicate and to exchange views by personal contact—among scientists the world over. Every scientist builds on the achievements of his predecessors and contemporaries; more often his own work is brought to fulfillment by the work of his successors. Unique proof of the complete interdependence of all scientific activities is found in the winning of atomic energy, a scientific and technological achievement to which scientists from so many different countries contributed that it may be regarded as a prototype of international co-operation.

Laws controlling the dissemination of scientific information, however skillfully formulated, cannot be made sufficiently flexible and selective to avoid disrupting this symbiotic relationship among scientists and

2. 60 STAT. 755, 42 U.S.C.A. § 1801 (Supp. 1946) (hereafter cited by section only).

retarding to some extent the natural growth of science. This is a flaw characteristic of legal machinery, although it arises not infrequently in other disciplines. In medicine, for example, the conquest of a particular disease often hinges on finding a drug which will destroy the bacillus but not the patient.

While it may be possible to safeguard information against coming into the possession of foreign scientists and thus reduce leaks to countries which may be our enemies in future wars, this cannot be achieved without restricting the free exchange of ideas among our own scientists. Is there, then, a middle way which science and national security can travel together without seriously impeding each other? Many of our leading scientists believe not.³

The question remains, moreover, have information controls any value? Can they be enforced? Since this is open to serious doubt, it may be the point should have been considered at the outset. For if either we have no secrets to keep or could not keep those we have, other aspects of the matter would become more or less academic. Thus our presentation of the issues may come perilously close to Bertrand Russell's sad example of compound arguments: "I was not drunk last night. I had only two glasses of beer. Besides, it is well-known that I am a teetotaler."

To begin with, what subjects can effectively be kept secret? The Concise Oxford Dictionary gives as examples: "treaty, understanding, errand, door, passage, sin, process, arrival, influence." The facts about the physical universe are evidently not included. Mr. Churchill has referred to the release of atomic energy as a "secret long mercifully withheld from man." The expression is as felicitous as it is eloquent. For the secret has been withheld from *man*, meaning all men, not merely Germans, Frenchmen, Russians, or Porto Ricans.

The use of the word "secret" for the results of scientific investigations is unfortunate and misleading. A dream or an unuttered idea are examples of things which can be kept secret if their possessor does not choose to reveal them. "On the other hand, if I say, 'I know the critical mass of U-235 necessary to make a bomb, and I intend to keep it secret', I am using the word 'secret' in an entirely different sense. I am saying to you, not that you cannot find out what I know, but that you must

3. See, *e.g.*, the testimony of Louis N. Ridenour, Professor of Physics at the University of Pennsylvania. "In the radar field, we started with the same atmosphere of secrecy, the same precautions about compartmentation of information and clearance of individuals, which characterized the atomic bomb project right to the end, and still characterize it today. However, we did away with most secrecy before the end of the war. At the end of the war, the Army was publishing a magazine on radar with a circulation of over 12,000. It had become by that time apparent that secrecy cost in efficiency far more than it gained us by keeping the enemy in ignorance." *Hearings before Special Senate Committee on Atomic Energy Pursuant to S. Res. 179, 79th Cong., 1st Sess. 536* (1945).

find it out for yourself, without my help. This may cause you to become annoyed with me, but it cannot keep you in ignorance." 4

This is not to say that restrictions on the disclosure of the new basic discoveries or of technical processes, such as those involved in separating the isotope U-235, may not lengthen the period required by other nations to gain this knowledge. So the question becomes, not Shall we keep the secrets of atomic energy?—that is impossible; but rather, Will the control of atomic information in the United States delay other nations enough to warrant the resulting impairment of our own research and of international comity?

In reaching a judgment on this question, three factors must be taken into account. First, it is essential to recognize that once it is disclosed that a technical device has been developed in one country, even if details regarding it are withheld, the search becomes easier for other countries. The knowledge that a problem can be solved is an important aid to others seeking a solution, both in a psychological sense and in helping to eliminate fruitless lines of inquiry. This applies to fundamental, as well as applied research, and was well-illustrated in the development of atomic energy. Once it became known that a chain reaction could be sustained, that the neutron "reproduction factor" could be made to exceed 1, or that U-235 could be separated by various methods in substantial quantities⁵ the task for other countries seeking to develop their own methods for getting at atomic energy was perceptibly lightened. They had assurance that the problem could be solved and were able to concentrate their efforts on approaches of proven value. The point is well, though perhaps somewhat naively brought out by an incident famous in the history of science; it relates to a visit paid to John Napier, soon after his invention of logarithms, by Henry Briggs, then (1614) professor of geometry at Oxford. Briggs' first words were: "My lord, I have undertaken this long journey purposely to see your person, and to know by what engine of wit or ingenuity you came to think of this most excellent help in astronomy viz logarithms; *but, my lord, being by you found out I wonder nobody found it out before, when now known it is so easy.*"

Second, the general principles underlying all processes are likely to be widely known being derived usually from some discovery of basic science. For example, the successful gaseous diffusion method of separating U-235 was based on identical principles enunciated by Lord Rayleigh as early as 1896. Thus, it is only the latest improvement or modification of an existing technique which can be held in camera, and then only for an indeterminate but usually brief period. Moreover, there is no

4. *Id.* at 537.

5. All of this information was officially established by the Smyth report. See SMYTH, *ATOMIC ENERGY FOR MILITARY PURPOSES* (1946).

likelihood whatever, with all our preeminence in technology, that the disparity between the level of our technical competence and that of other industrialized countries—at least half a dozen could be named (*e.g.* Great Britain, Canada, Russia, France, Sweden, Czecho-Slovakia)—is such that the latter would be more than, at most, a few years behind us. Indeed, there is abundant evidence that other nations frequently develop technological methods and processes distinctly superior to ours in a variety of fields.

Even wholly new processes are likely to be already known or simultaneously discovered in other countries. For intellectual progress, especially in the sciences, is more or less uniform in countries which for generations have shared the same cultural climate. Only a small fragment of our own scientific ideas are likely to be original, and that fragment is likely to be of little value by itself. One would not assume that biological evolution functions differently in Des Moines, Copenhagen and Moscow. The likelihood of marked differences in the evolution of scientific thought corresponding to geographical differences is equally small. Doubtless, some nations show special aptitudes in one field, some in another, but the community of science has long been international and the objects of its search are universal.⁶

6. On this point, we again have the testimony of Louis Ridenour.

"This is really the crux of the argument. If we can hide nothing permanently by scientific secrecy, then it is clearly undesirable, for it slows our own progress. Scientific history is full of coincidences—of cases in which two or more men, in different parts of the world, have reached the same result and independently of one another's work and at the same time. Dr. A. H. Compton, an outstanding figure in the work on the atomic bomb, was awarded the 1927 Nobel Prize in physics for his discovery of what is now called the Compton effect—the inelastic scattering of light quanta by free electrons. In Holland, this is called the Debye effect, because Compton's explanation of his experiments was given independently by Debye at the very same time.

"The Russian physicist, Gamow, and Gurney and Condon—the same Dr. Condon who is scientific adviser to this Committee—gave independently and at the same time an explanation of the phenomenon of alpha-particle disintegration of the radioactive elements. The very phenomenon of nuclear fission, itself, the basis for the atomic bomb, was only foreshadowed by the work of Hahn and Strassmann in Germany. The hypothesis of a violent splitting of the uranium nucleus was independently proposed and verified by Frisch in Copenhagen and by Joliot in Paris. The suggestion that plutonium would be a suitable explosive for an atomic bomb was made in this country by Prof. L. A. Turner. The Smyth Report points out that the same idea occurred independently to the British physicist Cookcroft, and Turner has told me that Von Halban, working in France, had the same idea at the same time.

"Two promising new devices for the acceleration of electrons and atomic nuclei to high energies were invented last fall by two young American scientists. One, called the synchrotron, was invented by McMillan, at Berkeley; another, the microtron, by Schwinger, at Harvard. In the Summer, 1945, issue of the Journal of Physics of the U.S.S.R., a Russian physicist named Veksler pub-

Finally, the cosmopolitan character of the atomic energy project should not be forgotten. This work was the product of the scientific brains of several of the allied nations, and participating scientists inevitably acquired a considerable measure of the specialized and technical knowledge required to produce the bomb. It must be assumed that any "secrets" known by these scientists, many of whom have returned to their own countries, have been disclosed to fellow-workers in nuclear physics in other parts of the world.⁷

Congress, nevertheless, decided that the dangers of free speech in nuclear science and related technologies could not be risked. And, having reached this conclusion, there remained the questions: What information was to be restricted? Under what circumstances might U. S. scientists exchange restricted information? How should violations be punished?

The answers to these questions appear in section 10 of the Atomic Energy Act.

STATUTORY STATEMENT OF POLICY

As a preamble to the main provisions of the control of information section, the Act recites two statements of policy, interesting mainly for their political significance.

Exchange of Information with Foreign Nations. Pursuant to the

lished a paper describing these two devices. Though the scientific shades had been down between Russia and the United States during the war, after five years we find Russians and Americans doing the same things, in the same way, at the same time. . . .

"In my own wartime field of radar there were many examples of the same kind. Radar itself was independently invented by the Germans, the French, the British, the Japanese, and ourselves. Each of these nations kept it secret from all of the others, not knowing to what little point this was done. Microwave radar, which has played such a great role in the allied victory, was made possible by a single invention, the cavity magnetron. This is a transmitting tube which gives previously unimaginable amounts of power on wavelengths far shorter than those available to radio engineers before the war. It was invented by the British. When the British sent a scientific mission over to this country in the late summer of 1940, one of the most impressive of the secrets they had to show us was the cavity magnetron. When the radiation laboratory was first set up, an attempt was actually made to keep knowledge of the magnetron localized in one group of the laboratory, not even letting the men who were working on a modulator to energize this tube know of the tube's design. Yet, all this time there was in the Russian literature a paper which exactly described the cavity magnetron, and gave the results of experiments with it."

Hearings before Special Senate Committee on Atomic Energy Pursuant to S. Res. 179, 79th Cong., 1st Sess. 537-8 (1945).

7. The statement of Professor Marcus Oliphant, a distinguished Australian scientist, leaves little doubt on this point. He said that the United Kingdom "knew all there was to be known about producing bombs because her scientists had worked with the United States in the development."

overriding consideration of "defense and security," data on atomic energy with respect to its use for industrial purposes shall not be exchanged with other nations "until Congress declares by joint resolution that effective and enforceable international safeguards against the use of atomic energy for destructive purposes have been established. . . ." ⁸ This language is similar in purport to certain declarations contained in the joint Truman-Atlee-King statement of November 15, 1945, on the international aspects of atomic energy.⁹

The statement plainly reveals the determination of Congress to safeguard all the "secrets" of atomic energy—including those relating solely to its industrial use. Since the production of power by nuclear processes requires either the production of fissionable material or the "burning" of fissionable material as nuclear fuel, Congress appears to have adopted a reasonable position. Note, however, that the text under consideration makes no reference to the possible exchange with other nations of technical data relating to other aspects of atomic energy even *after* "effective and enforceable international safeguards" have been established. Although no undue significance should be attributed to this omission, it reemphasizes the concern of Congress with the protection of the "secrets" and its unwillingness at the time to make any commitments as to conditions under which the resumption of free scientific intercourse would be permitted.

To be sure, other provisions of the Act may be thought to contradict this inference. For example, Section 8 provides that if international arrangements for the control of atomic energy are achieved, any provisions of the Act inconsistent with such arrangements "shall be deemed to be of no further force or effect." But since such arrangements must first have the approval of Congress, it is evident that Congress will have ample opportunity to consider the entire question of exchanging scientific data with other nations and deciding whether such exchange, or the relinquishment of atomic information to an international authority meets the requirements of defense and security *as then determined by Congress*.

Encouragement of Free Interchange of Ideas. American scientists, particularly physicists, throughout the period that the McMahan-Douglas Bill was before Congress, made their influence felt not only in public statements, but directly in seeking out key members of Congress for the purpose of explaining and urging the point of view of those engaged in research as a profession. While the "atomic scientists," as they called themselves (demonstrating thereby a finer appreciation of the journalists' art than of the niceties of English usage) had a serious interest in the bill as a whole, their closest attention was focused, as

8. Section 10 (a) (1).

9. Reprinted in SEN. REP. NO. 1211, 79th Cong., 2nd Sess. 33-5 (1946).

might be expected, on the research provisions and on the section dealing with the control of information. Section 10 reveals in several important provisions the success of their advocacy.

For example, Section 10(a)(2) provides that the dissemination of scientific information should be "permitted and encouraged so as to provide that free interchange of ideas and criticisms which is essential to scientific progress." Considered in conjunction with the balance of the section and the general provisions of the Act respecting research, it appears to assert a precept for the Commission of a priority comparable to the other policy directions which are set forth elsewhere in the Act. The existence of this policy statement deprives the Commission of the politically comfortable expedient of making defense and security exclusive considerations. Politically safe though such a position might be, its effect would be dangerous to the national security as well as intolerable to the working scientist.

MECHANICS OF THE CONTROL SYSTEM

The actual mechanics of the system of controls over information established by Congress in the Act are quite simple. Certain kinds of information relating to atomic energy are denoted as "restricted data."¹⁰ The Commission alone determines which of the restricted data shall be removed from this category and thereafter freely disseminated. Restricted data may not be communicated or transmitted without incurring certain penalties in the event that acts of communication or transmission are perpetrated "with intent to injure the United States or with intent to secure an advantage to any foreign nation,"¹¹ or, in certain instances, where the perpetrator, though innocent of such intentions has "reason to believe"¹² that injury to the United States or advantage to a foreign power will be the consequences of his action.

While the mechanics are simple, the concepts are not; nor is the interpretation and application of the several provisions free of serious difficulties and dangers. Let us proceed to examine some of the major parts of the control machinery in somewhat greater detail.

Restricted Data. Restricted data are defined as "all data concerning the manufacture or utilization of atomic weapons, the production of fissionable material, or the use of fissionable material in the production of power. . . ." ¹³

Dominated by considerations of caution Congress constructed this definition so as to embrace practically all significant data relating to

10. Section 10(b)(1).

11. Section 10 (b) (2) (A).

12. Section 10 (b) (2) (B).

13. Section 10 (b) (1).

atomic energy. Its manifest intention was to make the term "restricted data" an all-inclusive category from which the Commission might remove classes of information on its own responsibility and in conformity with the general security standards set forth in the Act.

The first portion of the definition raises no serious problem. Information respecting the manufacture or utilization of atomic weapons is almost exclusively of military value and should obviously be subjected to strict control. The other portions of the definition, however, are not so readily disposed of.

Information as to the production of fissionable material, a very loose and broad concept, embraces much that is of general importance to fundamental as well as applied research. If private research in this area is to contribute effectively to the future development of atomic energy, it will be necessary to keep channels of communication open between the laboratories of government and those of university and private industry. The Commission must, therefore, reconcile objectives of opposite tendency: the maintenance of secrecy and the promotion of vigorous and fruitful research. So long as the present temper prevails, the Commission will feel powerful pressures to refrain from declassifying data, until they are generally known, in part at least, as a result of publication by other countries. Tempting as this policy will prove, it is to be hoped that the Commission will reject it, for if the United States publishes little other than what is already known, other countries will follow the same course, and the rate of scientific progress will be greatly retarded. The larger the area which is maintained as restricted, the greater will be the responsibility of the Commission to encourage the free exchange of information among our own scientists and between federal and non-federal laboratories.

The third category of restricted data encompasses "the use of fissionable material in the production of power." In the event of an agreement between nations to set up an international development authority, the information function in this, as in other categories, will be altered radically. Even in the absence of an international agreement, however, the provisions of the Act relating to the production of power and associated controls over information must be considered if the denaturing process referred to in the Acheson-Lilienthal Report¹⁴ can be rendered truly effective.

Insofar as the fields of atomic power and of fissionable material production overlap, restrictions on dissemination of information relating to the former are obviously justified. However, scientists who have worked in the field have repeatedly asserted that a variety of useful data on power production could be released without the revelation of

14. *A Report on the International Control of Atomic Energy*, H. R. Doc. No. 709, 79th Cong., 2d Sess. 23 (1946).

significant data on the production of fissionable material. The only justification for prohibiting communication in this area, consequently, is that it relates to the nation's economic potential, and as such has economic significance. There can be no quarrel with the general proposition that economic potential is ultimately convertible into military effectiveness, but if this is the rationale for a policy restricting the dissemination of information, then clearly there are many other categories which must be included as well: coal mining, steel production, electrical engineering, automobile manufacturing, chemicals—the list could be extended indefinitely. The policy followed by the Commission in this area will thus have implications of broad significance, and it is of considerable importance that it should not appear to endorse the principle that data should be withheld merely on the grounds that it relates to the nation's general economic potential and thus, ultimately, to its military strength.

As indicated above, the three categories of restricted data are sweepingly inclusive in scope. Unfortunately, a detailed enumeration of categories of restricted information was not feasible. Such a catalogue would have been unwieldy apart from the fact that its publication would have revealed certain information which it had been decided must for the present be kept secret. That Congress intended information within the restricted categories to be released at the Commission's discretion is, of course, evident from the express language in the latter part of Section 10(b)(1).¹⁵ The Senate Special Committee, moreover, was at pains to study the declassification procedures followed by the Manhattan District in issuing documents such as the Smyth Report, and to incorporate in the Act itself the principles employed there.

What areas of information clearly lie outside the scope of restricted data as above defined? Much fundamental information in the field of nuclear physics does not appear to be caught up in the control net. But to dispel doubts and to relieve physicists of the intolerable fear that publication of every research finding is a violation of the Act, the Commission will be well-advised to publish explicit and detailed catalogues of types of data *not* included in the restricted category. These catalogues must be kept up-to-date and made available promptly to all research laboratories. Exempt information would also include an immense amount of medical data in relation to radioactivity and radioactive substances; technological information on the mining and refining of source materials; chemical and engineering data and similar information.

Final authority for removing data from the restricted category lies

15. “. . . but shall not include any data which the Commission from time to time determines may be published without adversely affecting the common defense and security.”

with the Commission.¹⁶ If another agency of the Federal Government should attempt to apply its own interpretation of what data lie within the restricted category, intolerable confusion would result. To guard against this possibility, Section 10(b)(6) expressly states that "no government agency shall take any action under . . . other laws inconsistent with the provisions of this section." The Senate Special Committee Report interprets this provision as prohibiting "any agency from placing information in a restricted category under the authority of this *or any other law* once such information has been released from the category by official action of the Atomic Energy Commission."¹⁷

Types of Offenses and Prescribed Penalties. Having defined "restricted data" the Act proceeds to set forth the actions involving its communication, acquisition, or alteration which invoke criminal penalties if committed (1) with intent to injure the United States; (2) with intent to secure an advantage to any foreign nation or (3) with reason to believe that injury to the United States or advantage to a foreign nation will result from the act.

The prohibited actions are clearly stated and raise no problems of interpretation. They can be briefly disposed of before an analysis of the more difficult problem of the intent with which such acts are committed is undertaken.

The first group of prohibitions is directed against the communica-

16. There is some legal basis for concluding that publication in any form of such data may operate to remove it from the scope of controlled information. To be sure, the only cases which have been decided arose under the Espionage Act. 40 STAT. 217 (1917), 50 U.S.C. § 31 (1940). But a judicial holding as to what is and what is not an official secret, the unauthorized disclosure of which justifies criminal proceedings, must be judged as relevant to the interpretation of any statute providing for the control of information in the interest of national defense. In *United States v. Heine*, 151 F. 2d 813 (C.C.A., 2d 1945), the court held that the defendant could not be punished under the Espionage Act for communicating information of military significance to a foreign nation where the information had previously been publicly released or not withheld and, therefore, was publicly available, even though there was clear evidence of the defendant's bad intent. Relying upon legislative debates emphasizing an intent to prohibit communication only of "secrets," the court interpreted the Act to exclude non-secret information. From the standpoint of endangering the national defense, once information has been made public, even if unlawfully, the harm, if any, has been done and those responsible for the initial publication should bear the brunt of the punishment.

Even apart from the interpretation announced in the *Heine* case, it may be unconstitutional to prohibit communication of publicly available information. Secrecy controls rest upon the war powers and may supersede the first amendment guaranteeing freedom of speech only if necessary to the waging of war or the national defense. In *Schenck v. United States*, 249 U.S. 47 (1919), the Supreme Court rephrased this test in terms of whether or not the prohibited utterances constituted a "clear and present danger" to the nation's safety. It is at least possible that the courts will declare this requirement not met by utterance of information which is already publicly available.

17. SEN. REP. No. 1211, 79th Cong., 2d Sess. (1946). See discussion *infra* pp. 790-801 showing the relation of this provision to the Espionage Act.

tion of information in documentary form or orally. The Act provides that whoever "communicates, transmits, or discloses any document, writing, sketch, photograph, model, instrument, appliance, note or information involving or incorporating restricted data" with intent to injure the United States shall upon conviction be punished by death or imprisonment for life, *provided this is the recommendation of the jury*; if the jury *does not recommend* death or life imprisonment the maximum penalties are 20 years imprisonment and a fine of \$20,000.¹⁸ The same act committed with intent to secure an advantage to a foreign nation is punishable by a maximum of 20 years imprisonment and a \$20,000 fine, and if committed without intent but with reason to believe that injury to the United States or advantage to another nation might result, the punishment is limited to ten years and a \$10,000 fine.¹⁹

Although the penalties of death or life imprisonment are evidently reserved for the most flagrant offenses and require an express recommendation by the jury, it should be noted that they may be meted out even in peacetime. This contrasts sharply with the penalties of the Espionage Act²⁰—a maximum of 20 years' imprisonment—for similar offenses under similar circumstances. Note further that the prohibition applies to illegal traffic in restricted data whatever their source—whether produced on federal projects or in private laboratories. Assume the case of scientist *A*, working in a government laboratory, who, having gained access to restricted data, passes the data on to *B* with intent to injure the United States. *A* will be prosecuted and may either suffer imprisonment up to 20 years, or, in the extreme case, the jury may recommend the sentence of death or life imprisonment. The penalties are severe, but they are probably justified by the nature of the crime—a treasonable act on the part of a public servant entrusted with official secrets.

But assume that *A* works in a private laboratory, has no official connection with the government and uses no federal funds. Assume that *A* independently makes a discovery and publishes results which incorporate restricted data. If on *A*'s trial the jury finds that publication was with intent to injure the United States, he may also receive the death penalty if the jury so recommends. Moreover, either the government or the private scientist may receive a maximum of 10 years' imprisonment for committing the offense *without* any specific intent to injure the United States if it appears that he had reason to believe his act would result in injury to the United States or benefit to a foreign power.

In effect, therefore, the Act abolishes to a considerable degree pre-

18. Section 10(b) (2) (A).

19. Section 10 (b) (2) (B).

20. 40 STAT. 217 (1917), 50 U.S.C. § 31 (1940).

vious distinctions between public officials and private individuals, and between "official secrets" and data independently arrived at.

The second group of prohibitions is directed against the acquisition or attempt to acquire restricted data in documentary form or orally.²¹ Whoever, with intent to injure the United States, "acquires or attempts or conspires to acquire any document, writing . . . involving or incorporating restricted data" is punished by death or life imprisonment, *if the jury so recommends*; otherwise, the maximum penalty is 20 years' imprisonment and a fine of \$20,000. The latter sentence is also prescribed for a similar act committed with intent to secure an advantage to any foreign nation. No one, however, may be convicted of these offenses unless actual intent to injure the United States or give advantage to a foreign power is proved. Constructive intent, *i.e.* "reason to believe," will not, as in the case of communication of restricted data, suffice for a conviction.

The third group of prohibitions rests upon a hybrid concept partially related to restricted data, partially to what might be called sabotage. It is provided that whoever "removes, conceals, tampers with, alters, mutilates or destroys any document, writing . . . used by any individual or person in connection with the production of fissionable material, or research or development relating to atomic energy, conducted by the United States, or financed in whole or in part by Federal funds, or conducted with the aid of fissionable material, shall be punished" by death or life imprisonment if committed with intent to injure the United States provided this is the recommendation of the jury.²² If the jury does not recommend death or life imprisonment, or if the act is committed with intent to advantage a foreign nation, the maximum penalty again is 20 years' imprisonment and a \$20,000 fine.

It is reasonable to make punishable the offense of mutilating or destroying plans and documents incorporating restricted data and representing the fruits of nuclear research in government laboratories, although the death penalty seems an unduly severe measure to apply. But to make the same action a capital offense under certain attendant circumstances even where committed in a private laboratory seems to reflect an unreasoning fear bordering on hysteria.

Indeed the draconic sweep of all these penalties reveals Congress' obsession with the safeguarding of secrets. The unprecedented provisions which prescribe the death penalty in peacetime for such an offense as "mutilating" a "sketch" relating to research on atomic energy partially financed by federal funds can be ascribed only to superstitious dread. Terror of the atomic bomb is natural and understandable—perhaps even healthy; but terror at the loss of the "secret" is a tribal

21. Section 10 (b) (3).

22. Section 10 (b) (4).

fear which, once gaining ascendancy in our minds, must inevitably weaken rather than strengthen our defensive power as a nation. Pre-occupation with the "secret," instead of with the thing itself, will stifle the scientific research from which our real strength is derived, will strengthen the pernicious misconception that we have a monopoly of knowledge in the science of atomic energy, and will beguile us into embracing the fatal fallacy that we can achieve security for ourselves by keeping our knowledge from others.

THE PROBLEM OF INTENT

Intent to Injure the United States. What is meant by committing an act "with intent to injure the United States"? The phrase is no palimpsest, yielding unsuspected meanings upon careful analysis. Read in the present context, an intent to injure the United States is presumably an intent to weaken its relative military strength by communicating data of military significance to a potential enemy. It is not certain whether this includes economic data, or, if it does, what range of such data. The answer must await judicial determination.

Unfortunately the precedents are meager and perhaps not even in point. Debate in Congress over the Espionage Act, which uses similar language,²³ seemed to indicate the general belief that the word "injury" related solely to military injury.²⁴ But this really brings us little farther. A military injury is presumably an injury respecting military plans or equipment. But what, in turn, are these? Decisions under the Espionage Act are, moreover, of limited weight in interpreting terms used in the Atomic Energy Act, partly because it was the clear intent of Congress, as evinced by the drastic penalties to treat atomic energy as a special and unique category; partly because in the Espionage Act, "restricted data" is defined as "information respecting the national defense," an even vaguer compendium than the loose definition accorded it in the Atomic Energy Act; and finally because the Espionage Act is plainly intended to protect only what might be termed "official secrets." Nevertheless, the influence of the First Amendment to the Constitution in interpreting the Espionage Act is likely also to be felt in judicial definition of "intent" under the Atomic Energy Act.

Intent to Advantage a Foreign Nation. Linked with the concept of "intent to injure the United States" is that of "intent to secure an advantage to any foreign nation." Even before the "one world" concept came into vogue, it might have been argued that any act which gives advantage to a foreign nation in the sense of strengthening its

23. ". . . with intent or reason to believe that the information is to be used to the injury of the United States, or to the advantage of any foreign nation. . . ." 40 STAT. 217 (1917), 50 U.S.C. § 31 (a) (1940).

24. See 54 CONG. REC. 3595 (1917).

military potential, would create a balance of military power less favorable to the United States, and thus constitute an injury to this country.

In *United States v. Heine*,²⁵ however, Judge Learned Hand indicated that the phrase "injury to the United States" as used in the Espionage Act is not as broad as "advantage to a foreign nation." He wrote "while it is true that it is somewhat hard to imagine instances in which anyone would be likely to transmit information . . . which would be injurious to the United States, and yet not advantageous to a foreign power, it is possible to think of many cases where information might be advantageous to another power, and yet not injurious to the United States."²⁶ In this statement we have one of the few guideposts, if judicial precedents under the Espionage Act can be so considered, to the scope of the phrase "advantage to any foreign nation."

The Atomic Energy Act indicates on its face that Congress used the phrase "intent to give advantage to a foreign nation" to connote a less grave circumstance in connection with unlawful dissemination of restricted data than "intent to injure the United States." For an offense to be punishable by death or life imprisonment, the Act requires it to have been "committed with intent to injure the United States."²⁷ The legislative history of the Atomic Energy Act does not contribute significantly to determination of its meaning. The Senate Special Committee rejected the proposal to modify the phrase "advantage to any foreign nation" by inserting the word "military" before "advantage."²⁸ From this it may be inferred that "advantage to any foreign nation" is not to be regarded merely as an alternative or reciprocal method of expression for "injury to the United States," if the latter is construed as meaning "military" injury.

It is manifestly impossible to prove "intent," *i.e.*, a state of mind, except by outer, observable circumstances. Objective evidence of intent to give a *military* advantage to a foreign nation is most likely at the same time to be evidence of intent to injure the United States militarily. It is permissible therefore to infer that it was not the purpose of Congress to exempt from the death penalty or life imprisonment anyone who communicated information with the intent of giving a *military* advantage to a foreign nation. Exceptions to this rule of thumb are conceivable, but are not likely to have practical weight in judicial proceedings. We may note as one example, the case of the British scientist, Alan Nunn May, sentenced to prison in 1946 for transmitting to a foreign nation restricted information of military value

25. 151 F. 2d 813 (C.C.A. 2nd 1945).

26. *Id.* at 815.

27. Sections 10(b) (2) (A), 10(b) (3), 10 (b) (4).

28. See N. Y. Times, May 2, 1946, p. 5, col. 4.

relating to atomic energy.²⁹ May readily confessed to the charge, but advanced in defense, such arguments as the right of scientists of all nations to communicate freely. Under the Atomic Energy Act, it would have been possible for May's counsel to argue that while May had intended to give valuable military information to a foreign nation, and thus to confer a military "advantage" on that nation, it was not his intention to "injure" his own country. But it is doubtful whether this argument would have persuaded either court or jury in May's favor.

Suppose, however, that the "foreign nation" which a defendant is accused of having advantaged, is regarded by the United States as a friendly nation, which in all probability would neither betray the information thus gained to a nation "unfriendly" to the United States, nor, in the event of a future war, be other than our ally. May the court or jury take notice of this fact of *real-politik* and thus conclude that the offender under no circumstances intended to "injure the United States"? Might this fact be regarded as a complete excuse of the defendant's offense? In other words, is the giving of an advantage "to any foreign nation" to be considered in light of which foreign nation actually was the beneficiary of the advantage? It is unlikely that the courts would go so far in construing the phrase, yet one may venture the guess that the punishment for the offense would be mitigated considerably if the foreign nation to which the information was given were a "friendly" or "popular" or "non-aggressor" nation.

Now if intent to give a military advantage to a foreign nation is almost tantamount to intent to injure the United States, what are the less grave circumstances which Congress intended to fall within the "advantage" category alone? It is probable that useful economic data, especially such data relating to atomic power, would be interpreted as conferring an advantage on a foreign nation; it is less likely that medical culture information would be included unless there were some clear military or economic significance to the particular data revealed. Much, however, will depend upon the prevailing political climate, the state of international relations, the effect of these on the judicial process, and the policies of the Commission in interpreting the definition of restricted data and in removing data from this category.

"Reason to Believe." Certain offenses, as noted above, are punishable even if there is no evidence of intent of either type, as long as the individual unlawfully disseminating restricted data had "reason to believe such data will be utilized to injure the United States or to secure an advantage to any foreign nation."²⁹

"Reason to believe," is, if anything, a more cryptic phrase than those examined above. Lawyers, however, are soothed by such jargon

29. Section 10 (b) (2) (B).

which serves to convey ideas more deeply felt than understood. Reason to believe invokes the judgment of the ordinary reasonable man—a standard somewhat lacking in objective exactitude, but one to which men learned in the law instinctively turn.

It is fair to predict that prosecutions grounded on dissemination with "reason to believe" are most likely to be directed against scientists who inadvertently publish restricted data in a journal or monograph, against journalists publishing such data in newspapers, and against anyone having the misfortune to misjudge the character, the loyalty or the discretion of another to whom he has communicated restricted data. But these by hypothesis, are all men innocent of any deliberate intent to engage in treasonable activities. At most they may be indiscreet. It is justifiable to punish carelessness and indiscretion concerning atomic data with severity—since data so revealed is as dangerous to the national security as that given away by deliberate treason; nevertheless, punishment should be limited to those who have been guilty of carelessness and indiscretion, and this guilt should be demonstrable by objective standards.

Since one may infer that data in the restricted category are *per se* deemed capable, if improperly disseminated, of inflicting injury on the United States or conferring an advantage on a foreign power, proof that the data communicated lay within the restricted category would no doubt create the presumption that it was conveyed with reason to believe it would inflict injury on the United States or confer an advantage on a foreign power.

A scientist engaged on private research in nuclear physics must, therefore, keep fully informed regarding all interpretations and regulations issued by the Commission pertaining to the scope of restricted data. Only by so doing can he ascertain whether or not he is free to publish the results of his research. However, since it is manifestly impossible for the Commission to list even by title each category and sub-category of information subsumed under the definition of restricted data, partly because of the dimensions of the task, partly for reasons of security already mentioned, the private scientist can never be certain that the information he intends to publish lies outside the scope of restricted data. In questionable cases, therefore, he would be well advised to submit his report or monograph to the Commission for security clearance before publication. The Commission should establish a staff unit to review promptly all material submitted for this purpose.

Consider now, two possibilities. If the Commission decides the data are free of security restrictions, that ends the matter and the scientist is free to publish his findings in any way he sees fit. If on the other hand there is a ruling that the research findings contain restricted data, the scientist who has discovered the information cannot publish it.

But if the matter were to end here science would soon expire for lack of circulation and interchange of life-giving ideas. The scientist in question will find it necessary to communicate his findings to colleagues in the United States who are engaged in the same work and, therefore, have a vital interest in any advances which are made. At this point he is compelled to embark on a perilous venture. For while he is not forbidden to communicate restricted data to others, he must not only avoid laying himself open to a charge of acting with intent to injure the United States or to give an advantage to any foreign nation, but he must also be careful that he is not open to a charge that he had reason to believe that these consequences might result from his acts. In theory, at least, an innocent man would run little risk of being charged with an intent to injure the United States or advantage a foreign country, but anyone communicating restricted data must regard the "reason to believe" provision as a treacherous bog in his path. A scientist who communicates restricted data to his colleagues must be certain that they are loyal, trustworthy, and non-subversive; that they are fully acquainted with the control of information section of the Atomic Energy Act, and with regulations relating to restricted data issued by the Commission; and that in addition to being loyal and versed in the law, they are also discreet and keep good company.

This is, unfortunately, not a neurotic caricature of what the scientist faces when in the interest of scientific progress (or for any other reason) he takes it upon himself to impart restricted information. For it is easy to see that anyone, whose transmission of restricted data turns out badly, must face the possibility of prosecution for communicating with "reason to believe" that injury to the United States or an advantage to a foreign nation would result because the recipient of the information was (as would be alleged) well-known for his "disloyal views," "subversive tendencies," "reputation for indiscretions," and "disloyal acquaintances." It is, in other words, insufficient to guard one's own morals; one must also judge the loyalty, patriotism and discretion of those with whom one communicates and run the risk of imprisonment if this judgment should prove erroneous.

PROCEDURAL PROVISIONS OF SECTION 10

Commission Must be Advised Before Criminal Action Taken. Violation of any of the prohibitions just reviewed is a criminal offense, subject to prosecution in the federal courts. Ordinarily, all such prosecutions would be brought by the local United States Attorney, subject to internal supervision by the Department of Justice in Washington. The Atomic Energy Act, however, contains a novel provision directing that no prosecution be commenced except upon the direction of the Attorney

General and then only after the Attorney General has advised the Commission with respect to the prosecution.³⁰

The Senate Report explains this provision as "an assurance to scientists working in atomic energy fields that prosecutions would not be initiated without review by persons having the technical and scientific background necessary to determine the significance of the acts complained of."³¹ The House debates over the legislation suggest a further reason.³² Congresswoman Helen Gahagan Douglas, in urging defeat of the House Military Affairs Committee's efforts to delete the provision, justified it as an essential safeguard against precipitate action by local United States attorneys, the guarantee of a 'cooling-off' period during which, it is hoped, the more detached judgment of the Attorney General can be obtained. "A scientist's reputation," said Mrs. Douglas, "is severely injured by the mere initiation of prosecution, regardless of whether or not he is ultimately acquitted."³³ Scientists, now that their work has cast them into the volcano of controversy, must unfortunately expect to be the victims of the universal tendency to hasty judgments, almost impossible to eradicate by rational evidence. As the old saw has it: People think last what they thought first. The Commission as a matter of simple justice, apart from the dictates of enlightened self-interest, must not overlook any steps which would tend to reduce the risks to reputation and personal freedom that scientists working in atomic energy will face. Nor can it afford wholly to disregard the statement made by a group of the leading nuclear physicists that unless they could continue their work in peace, they would abandon their preoccupation with the inanimate atomic nucleus and turn their energies to the study of lepidoptera, a more secure if less exciting activity.

Investigation of Personnel. As a further means of protecting restricted data, the Act contains unique provisions to assure the integrity of personnel working on atomic energy matters. All contractors and licensees of the Commission are required to agree in writing not to permit any individual to have access to restricted data until an investigation of the "character, associations and loyalty of such individual" has been made by the FBI and a determination made by the Commission that access by such person will not "endanger the common defense or security."³⁴ It may be noted that disregard of this clearance is only a breach of contract, not a criminal violation. Of course, if restricted data should in fact be illegally communicated, the contractor or licensee

30. Section 10(b) (5) (A).

31. SEN. REP. NO. 1211, 79th Cong., 2d Sess. (1946).

32. 92 CONG. REC. 9470 (1946).

33. *Id.* at 9471.

34. Section 10(b) (5) (B) (i).

might be guilty of conspiracy³⁵ but additional evidence would undoubtedly be required to sustain such a charge.

For Commission employees, the Act requires an FBI investigation *before* hiring.³⁶ Similar investigations for government employees are customary and are often completed before the employee reports for duty. The provision is unprecedented, however, in making prior investigation a statutory requirement. Some flexibility is afforded the Commission in the power to hire without waiting "in case of emergency."

To bridge the temporary period in which investigations are being conducted, any individual permitted access to restricted data by the Manhattan District may be allowed to continue in this position of privilege and any present or former employee of the Manhattan District may be employed by the Commission.³⁷

One point merits emphasis. For all employees of the Commission, as well as employees of contractors and licensees, the final determination as to qualification for employment, including such elements as character and loyalty is made by the Commission. It has been the standard practice of the Federal Government to have the FBI investigate and report, with the final determination in each case left to the employing agency's discretion. While in the majority of instances the Commission would undoubtedly reject an applicant for employment if the FBI commented on him unfavorably, it would be a dangerous precedent to subordinate the judgment and authority of the agency responsible for the program to that of the FBI.

Use of Services of Other Agencies. To assure that all possible steps are taken to prevent unlawful dissemination of restricted data, including guarding of physical property and equipment, the President is expressly authorized to use the services of all government agencies "to the extent he may deem necessary or desirable."³⁸ This provision must be taken to apply especially to the monitoring and policing facilities of the military departments during the transition period while the Manhattan District is being taken over by the Commission, and before the Commission is staffed to perform these functions independently.

Inspections and Records. The Commission is expressly authorized to require reports to be made and records to be kept of atomic research under Section 3, and of licensed activities under Section 7 of the Act.³⁹ It is also authorized and directed to inspect such activities on its own initiative "as may be necessary to effectuate the purposes of the Act."

35. Section 10 (b) (2) (A).

36. Section 10 (b) (5) (B) (ii).

37. Section 10 (b) (5) (B) (iii).

38. Section 10 (b) (5) (B) (iv).

39. Section 10 (c).

With respect to the production of fissionable material incident to research, the Commission is directed to make *frequent* inspections and to require reports and records.

These provisions serve the dual purpose of enabling the Commission to perfect its control over these activities and of assuring that the Commission is promptly informed of new developments in the study, manufacture and use of atomic energy.

THE INFORMATION SECTION AND THE ESPIONAGE ACT

Reference has earlier been made to Section 10(b)(6), which provides: "This section shall not exclude the applicable provisions of any other laws, except that no government agency shall take any action under such other laws inconsistent with the provisions of this section." The phrase "applicable provisions of any other laws," while general, must be read as pointing particularly to the Espionage Act.⁴⁰

Until the adoption of the Atomic Energy Act, and thus throughout the entire period of the Second World War, the Espionage Act, passed in June 1917, and subsequently amended, was the only statutory source of the controls invoked to protect data concerning the atomic bomb, the production of fissionable material and the very existence of the Manhattan Project and all its activities. In the earliest stages of drafting legislation for the development and control of atomic energy, it was realized that the provisions of the Espionage Act were unsuited in several respects for dealing with the secret data of theoretical and applied nuclear physics. The control of information provisions of the Atomic Energy Act were not merely designed to plug certain gaps in the Espionage Act; they were designed with the object of satisfying as far as possible the desires of scientists to escape the stultifying restrictions on the exchange of information to which they had been subjected by the Manhattan District. Although in certain respects more comprehensive and more stringent than the Espionage Act, the Atomic Energy Act provided a framework within which the scientists felt they had some chance of operating effectively, however hazardous their personal lives might become. On the other hand they were convinced that an extension of the information practices of the Manhattan District, based on the Espionage Act, would in the long run smother all creative activity in the field of nuclear research.

If, therefore, Section 10(b)(6) is so construed that the Espionage Act remains in force for private research, as well as governmental activities, the scientists have, indeed, sustained a crushing defeat and the more moderate and enlightened information provisions of the Atomic Energy Act are little more than pietisms. It is reasonable to assume that no

40. 40 STAT. 217 (1917), 50 U.S.C. § 31 (1940).

such interpretation will be imposed; nevertheless, there remains a formidable problem in integrating and reconciling the provisions of the two Acts. For the Atomic Energy Act clearly cannot be considered to have supplanted the Espionage Act, and on certain major points, the two measures appear to be directly in conflict. Skillful administration and careful judicial consideration will be needed to reconcile the apparent inconsistencies and to effect the evident intent of Congress—regardless of the labyrinth of confusion that inadequate drafting has created.

To arrive at the heart of the difficulties, it is necessary now to examine the provisions of Title I of the Espionage Act and to show, step by step, where conflicts may arise between the two laws and how these may be reconciled without doing violence to either.

Information Respecting the National Defense. While the information section of the Atomic Energy Act makes some effort to define the crucial subject matter of "restricted data," the only reference to this subject in the Espionage Act is the phrase "information respecting the national defense." A review of judicial decisions (which are meager) and of the legislative history (which is inconclusive) furnishes both a negative and a positive criterion for evaluating "information relating to the national defense." *United States v. Heine*⁴¹ seems at least to establish the principle that "information relating to the national defense" cannot be information publicly available. The opinion goes on to say that the information must be "secret" although the term is not precisely defined.

The legislative debates on the Espionage Act furnish ground for concluding that only "official secrets" were intended to be covered by the Act.⁴² Vague as this term is, it is, nevertheless, of considerable importance in defining the scope of the Espionage Act and in reconciling ap-

41. 151 F.2d 813 (C.C.A. 2nd 1945).

42. See, *e.g.*, the remarks of Senator Overman in debate over S. 8148 (the parent bill of the Espionage Act) in which he asserted that the bill meant "secrets." 54 CONG. REC. 3489 (1917). Later he referred to "our secrets in regard to national defense." *Id.* at 3586. Furthermore, the Senator foreshadowed the precise holding of the *Heine* case when he stated that where information "had been made public property" there would be no offense. *Id.* at 3597. It is interesting to note that this statement was nowhere cited in Judge Hand's opinion nor in the briefs of counsel.

Further support for the view that the Espionage Act referred only to "official secrets" can be found in the House report on H.R. 291 where it is stated that ". . . it is important that the Commander in Chief shall have authority to prevent the publication of national defense secrets, which would be useful to the enemy. . . ." H. R. REP. No. 30, 65th Cong., 1st Sess. 10 (1917).

Doubts as to this interpretation were expressed by Senator Cummins, though not concurred in by Senator Overman. See 54 CONG. REC. 3485 (1917). Compare Senator Cummins' remarks on the broad implications with *United States v. Heine*, 151 F.2d 813 (C. C. A. 2nd 1945), which denies that the Espionage Act has equally broad application. [The above footnote is based on material prepared by Nathaniel H. Goodrich of the New York Bar].

parent conflicts with provisions of the Atomic Energy Act, as will appear presently.

The other leading court decision⁴³ under the Espionage Act is not conspicuously helpful in defining information relating to the national defense. National defense is stated to be a "generic concept of broad connotations, referring to the military and naval establishments and the related activities of national preparedness." Evidently this is not Ariadne's thread to guide us out of the labyrinth.

Types of Offenses and the Prescribed Penalties under the Espionage Act. (A) Section 1(a) of the Espionage Act recites an offense for which there is no counterpart in the Atomic Energy Act: that of entering upon any government installation (e.g. vessel, aircraft, navy yard, arsenal) or upon any other restricted territory vital to the manufacture and shipment of military equipment (e.g. coaling station, canal, railroad, factory) or upon any other place "connected with the national defense, owned and constructed, or in progress of construction by the United States . . ." for the purpose "of obtaining information respecting the national defense with intent or reason to believe that the information to be obtained is to be used to the injury of the United States, or to the advantage of any foreign nation. . . ." By Section 6, the President is given power in time of or national emergency to designate any place other than those set forth above as a "prohibited place," for purposes of this title.

The prohibition, insofar as it relates to "entering upon" the places named, is in all respects unaffected by the Atomic Energy Act. However, the fact that the large majority of prohibited places are federal installations or places directly involved, by contract or otherwise, with the Federal Government in activities relating to the national defense is relevant insofar as it tends to strengthen a view that the Espionage Act is concerned mainly with government-owned or government-produced data.

The offense of "obtaining information" relating to the national defense from any such place, as distinguished from entering upon prohibited places for the purpose of obtaining such information, in a measure overlaps Section 10(b)(3) of the Atomic Energy Act. Prosecutions involving "restricted data" (which might also be considered "information relating to the national defense") would, therefore, in all probability invoke the authority of the Atomic Energy Act, if for no other reason than that the maximum penalties under this Act are death or life imprisonment in one set of circumstances, and 20 years imprisonment or a fine of \$20,000 in another, as against a maximum of 10 years imprisonment and a \$10,000 fine in any circumstance under the Espionage Act.

43. *Gorin v. United States*, 312 U.S. 19, 28 (1940).

Note, however, that under the Espionage Act, "obtaining information" with "reason to believe" that the information will be used to injure the United States or to the advantage of any foreign nation is a punishable offense which has no counterpart in the Atomic Energy Act. Which law will prevail if the restricted data of atomic energy are involved? While a judicial decision is evidently required to settle the issue a prosecution under Section 1(a) of the Espionage Act for obtaining restricted data on atomic energy "with reason to believe" would seem contrary to the intent of Congress. Omission of "reason to believe" from Section 10(b)(3) of the Atomic Energy Act, in light of the use of the same term elsewhere in the Act, appears deliberate.

(B) *Section 1(b)* provides a maximum of 10 years' imprisonment and a fine of \$10,000 for the offense of copying, making, taking, or obtaining—or inducing or aiding another to do so—of any specified thing such as a document, sketch, or blueprint, connected with the national defense, with intent or reason to believe that the information is to be used to the injury of the United States or to the advantage of any foreign nation. This offense is similar to that for which Section 10(b)(3) of the Atomic Energy Act provides severe penalties. A distinction of which much has been made lies in the fact that the Espionage Act forbids the acquisition of *documentary information only*, while the Atomic Energy Act seals this crevice by adding the phrase "or information." But this point seems overemphasized. Suppose, for example, *A* memorizes or induces another to memorize the content of a map or document⁴⁴ containing information respecting the national defense, intending to use such information to the injury of the United States. It seems doubtful that such an action would be immune from the operations of the Espionage Act.

Again, it should be noted that the Espionage Act, unlike the Atomic Energy Act, makes acts within the prohibitions of this section punishable if performed "with reason to believe," as well as "with intent." The comments on this point under (A) above are applicable here.

(C) *Section 1(c)* applies the same penalties as those of Section 1(b) to the offense involving any of the above-mentioned kinds of documentary information by anyone knowing or having reason to believe that it has been or will be used by any person contrary to the provisions of the Act. This is a curious provision substantially overlapping Section 1(b), and has no counterpart in the Atomic Energy Act.

(D) *Section 1(d)* is of particular importance. It provides that "whoever, lawfully or unlawfully having possession of, access to, control over, or being entrusted with, any document, writing, code book, signal

44. There come to mind at least two famous fiction cases involving these circumstances: "Mr. Memory" in JOHN BUCHAN, 39 STEPS; A. CONAN DOYLE, THE BRUCE-PARTINGTON PLANS.

book, sketch, photograph, photographic negative, blueprint, plan, map, model, instrument, appliance, or note relating to the national defense, willfully communicates or transmits or attempts to communicate or transmit the same to any person not entitled to receive it, or willfully retains the same and fails to deliver it on demand to the officer or employee of the United States entitled to receive it . . . shall be punished by a fine of not more than \$10,000, or by imprisonment for not more than 10 years, or both."

There is no counterpart for this provision in the Atomic Energy Act, but it should be considered in relation to Section 10(b)(2). First, there are the usual differences in the severity of the punishment, already mentioned above. Second, Section 1(d) makes no reference to intent to injure the United States or to give advantage to any foreign nation; nor, of course, is there mention of the accompanying circumstance of "reason to believe." The Atomic Energy Act, on the other hand, enumerates offenses under both attendant circumstances in sections 10(b)(2)(A) and 10(b)(2)(B). The language of Section 1(d) of the Espionage Act is "willfully communicates or transmits or attempts to communicate." Without entering upon a legal-semantic analysis of the word "willful," and its uses in the law, it is fair to infer that as used in this context it is a *flat prohibition* against communicating *regardless of intent or reason to believe*. The only exempted communications would be those made under duress, or in a somnambulistic state, or by an insane person. This interpretation of the intent of the provision is strengthened by the fact that what is prohibited is the communication "to any person not entitled to receive it." (emphasis added).

Section 1(d) omits the word "information" from its catalogue of prohibited transmittances and communications—an omission to which some significance may be attributed in view of the inclusion of the word in other sections. Shall section 1(d), therefore, be limited in interpretation to control over the disposition of documentary information or other vehicles incorporating data related to the national defense? The language of the Act itself makes such a conclusion unlikely. It is made unlawful to "communicate" documents, models, sketches, or plans. Since physical objects clearly cannot be imparted by "communication," the provision becomes meaningful *only* if the prohibition extends to the information contained or incorporated in the document, model, sketch, or plan, as well as to transmittal of the physical objects themselves.

The legislative history of the Espionage Act only partially supports the view that Congress believed information contained or incorporated in the objects listed to be under the same interdict as the objects themselves, even though the word "information" was omitted from section 1(d). The word was included in earlier drafts of the bill⁴⁵ and

45. S. 8148, 64th Cong., 2nd Sess. (1916); S. 2, 65th Cong., 1st Sess. (1917).

when a draft omitting "information" was brought to the floor of the Senate, the omission was questioned. Senator Overman, managing the bill on the floor, stated that in the opinion of the draftsmen, express inclusion of "information" was unnecessary because the bill was already broad enough to cover it: "I think everything is covered in the bill without putting in those words here. The Committee thought that those words are unnecessary in this place."⁴⁶

It may be admitted that this does not immediately resolve all doubts; nevertheless, the balance of the evidence, logical, philological, and historical, appears to support the view that "information" lies within the scope of section 1(d), even though not specifically mentioned.

Section 1(d) prohibits the communication or transmission of any document "to any person not entitled to receive it," and makes an offence of "willfully" retaining such a document or failing to "deliver it on demand to the officer or employee entitled to receive it." This is by far the strongest element in proof of the proposition that at least as far as communication and transmission of data are concerned, the Espionage Act is intended to control only official government secrets. The use of the bare phrase "entitled to receive it," unqualified by any other standard for determining what class of persons is thus entitled, points to the conclusion that only "officers and employees of the United States," subject to the procedures for classifying authorized persons applied by their own agencies, could have been intended; and to the further conclusion that the subject matter involved could only be official government secrets or government information.

Here again, the legislative history is inconclusive. The corresponding section of H.R. 291, one of the parent bills of the Espionage Act, was expressly limited to information "belonging to, intended for, or under the control of the United States." S. 2, another parent bill, also referred to "information belonging to the government, or contained in the records or files of any of the executive departments . . . to which no person unless duly authorized shall be lawfully entitled." On the other hand, the absence of any such clear-cut language in the Espionage Act itself may lead to the inference that the term "information" is not of such limited scope.

In *United States v. Gorin*,⁴⁷ the Court in holding certain other sections of the Espionage Act constitutional said that "information relating to the national defense" is not too vague a description of forbidden subject matter, in view of the fact that to obtain a conviction under the sections involved, it was necessary to show that the offender had mischievous intent or had "reason to believe" that the consequences of his actions would adversely affect the national defense. But in sec-

46. 55 CONG. REC. 778 (1917).

47. 312 U.S. 19 (1940).

tion 1(d), neither intent nor reason to believe need be proven. From the reasoning in the *Gorin* case, it would appear that section 1(d) would be unconstitutional if construed to make a criminal offense of the mere "willful" communication of "information relating to the national defense," without either intent to injure the United States (or advantage any foreign nation) or reason to believe that such would be the consequences of the communication, since in this situation the vagueness of "information relating to the national defense" would not be offset by a requirement that *intent* be proven. On this principle, a conviction under section 1(d) for communication without "intent" and without "reason to believe" could be sustained only if the vague and essentially undefinable concept "information relating to the national defense" is construed, *so far as section 1(d) is concerned*, to mean information for example belonging to the government, or contained in the records or files of any of the executive departments. For on that interpretation, even if intent (or reason to believe) were lacking, the prohibited information would be so clearly describable that one could not plausibly assert that section 1(d) failed wholly to meet the necessary standards of definiteness and comprehensibility required for penal statutes.

(E) *Section 1(e)* describes the offense of misdelivering or losing any document, plan, code, book, photograph, model or information "relating to the national defense" or of "permitting the same to be removed from its proper place of origin . . . or to be stolen, abstracted or destroyed". . . "*through gross negligence.*" [emphasis added.] The offender must be one "entrusted with or having lawful possession or control of" any such information, documentary or otherwise. The maximum punishment is ten years' imprisonment, \$10,000 fine, or both. Neither intent nor reason to believe are ingredients of this offense: it is predicated upon gross negligence. Furthermore it clearly is limited to officials or employees of the government (including government contractors) since persons in this class would be "entrusted with or have lawful possession or control of" the information in question. It is conceivable that someone not in this class might have "lawful possession" but this would be the rare and exceptional case.

There is no provision of the Atomic Energy Act corresponding to Section 1(e). Section 10(b)(4) describes, among others, the offense of "mutilating or destroying" any document containing or incorporating restricted data, but intent to injure the United States or give advantage to a foreign nation must be an attendant circumstance. The offense is not limited to persons "entrusted with or lawfully in possession or control of" the restricted data.

It is clear that the offense described in section 1(e) of the Espionage Act is applicable to the restricted data of atomic energy, but judicial determination is required to describe the *class of persons* to whom its

prohibition extends. This class includes government officials, employees, and contractors, anyone officially entrusted with restricted data by an executive department of the Federal Government, and perhaps anyone working on a project financed in whole or in part by federal funds, but private, non-federal activities in the field of atomic energy, (e.g. research and development, industrial) should not be within the scope of section 1(e). The loss, for example, through gross negligence of restricted data (information relating to the national defense within the meaning of the Espionage Act) by a scientist engaged in private research in nuclear physics would not be a punishable action within the meaning of section 1(e) of the Espionage Act. On the other hand, if a government scientist loses, through gross negligence, a document with which he has been entrusted, containing restricted data within the meaning of the Atomic Energy Act, he would certainly be liable to punishment under section 1(e).

(F) *Section 2(a)* provides a maximum penalty of 20 years' imprisonment for the communication or transmittal (or inducing another to do so) of documents, sketches or of *information* relating to the national defense, to the government, representative, or subjects of any foreign state. The action must be taken with "intent or reason to believe that it [the information] is to be used to the injury of the United States or to the advantage of a foreign nation." The same offense, committed in time of war, is punishable by death or by imprisonment for not more than 30 years.

This is the gravest offense, as may be inferred from the severity of the punishment, described in the Espionage Act. The same offense would be covered by sections 10(b)(2)(A) and 10(b)(2)(B) of the Atomic Energy Act, where if the action is committed with intent to injure the United States, it carries a penalty of death or life imprisonment upon recommendation by the jury; otherwise maximum punishment is 20 years or \$20,000. If committed with "reason to believe," the maximum punishment is 10 years or \$10,000. The corresponding sections of the Atomic Energy Act are more sweeping in the sense that to ground the offense the communicant need not be a "foreign nation," or an agent or subject thereof, and more stringent, in that the death penalty may be invoked even in time of peace; they are less stringent in that where the offense is committed with "reason to believe," the penalty in time of peace is 10 years as compared to 20 in the Espionage Act, and even in time of war the death penalty is not applicable.

It is reasonable to suppose that Congress did not intend to give the prosecuting attorney the option of moving under the Espionage Act instead of the Atomic Energy Act where an offense involving information relating to atomic energy is specifically described in the latter and only broadly and generically encompassed by the former. On the other hand this judgment creates an intellectual predicament. Its acceptance

might mean that while the disclosure of information relating to the construction of a machine gun, may, under given circumstances, be punishable by death, the disclosure of information relating to the exact construction of an atomic bomb, would not, under the same circumstances, be punishable by more than 10 years' imprisonment. But in spite of its anomalous consequences the conclusion seems inescapable. When Congress adopted Section 10 of the Atomic Energy Act it intended to prescribe the exact punishment to be applied for all violations involving the unlawful dissemination of restricted atomic energy data. And, in stating in Section 10(b)(6) that the applicable provisions of other laws were not to be excluded, it meant to guard against possible omissions, rather than to give a prosecutor the option of proceeding under other laws against offenses fully covered by the Atomic Energy Act for the sole reason that under such other laws these offenses bore heavier penalties.

RECONCILING THE ATOMIC ENERGY ACT AND THE ESPIONAGE ACT

It is evident from the foregoing discussion that the information section of the Atomic Energy Act does not wholly supplant Title I of the Espionage Act; neither can it be maintained that it merely supplements the Espionage Act. The relation of the provisions of the two statutes was apparently not adequately studied at the time of their drafting, with the result that there are areas in which the Atomic Energy Act appears to supplement the Espionage Act, areas in which it appears to duplicate it, and areas in which it seems to contradict it.

The difficulties of this ambiguity of relationship are real, and if we are destined to live in a world of international tension and warlike preparation, they will doubtless become important. The problem which will confront the Commission, the Department of Justice and the courts will be how best to reconcile the two Acts so as to do least violence to the obvious intent of Congress while preserving as nearly intact as possible the logic and the letter of the law.

Unfortunately the most direct solution—that of holding the Espionage Act superseded wherever it conflicts with the Atomic Energy Act *as regards the control of information relating to atomic energy*—is foreclosed. The Act explicitly provides that the "applicable provisions" of other laws are not superseded by the control of information section. Although the Espionage Act is clearly not repealed explicitly, it may be argued that at least some of its provisions are repealed by implication so far as the restricted data of atomic energy is concerned. However, the Supreme Court has in a fairly recent decision reaffirmed a doctrine of judicial interpretation which appears to rule out this possibility.⁴⁸

48. "It is a cardinal principle of construction that repeals by implication are not

The repeal doctrine, therefore does not offer a certain avenue of escape from the difficulties we have described. Nonetheless, we cannot wholly discard the possibility that in certain areas of conflict—notably those where the same action is subject to wholly different degrees of punishment in the two Acts—the courts may hold that a repeal by implication has been effected.

There remains, then, the task of ascertaining the principal points of conflict between the two Acts, and determining whether any possible way out of the difficulty can be found in each case.

Differing penalty provisions: The difference can only be resolved by judicial decision. Fortunately, this raises problems within judicial proceedings as such and does not pose any difficulties or dilemmas for the Commission in administering the Act.

Identical actions punishable under differing circumstances: For example, some actions are punishable under the Espionage Act when committed with "reason to believe," while the same actions are punishable under the Atomic Energy Act only when "intent" is proved. Here, too, reconciliation is a matter for the courts. Note, however, that judicial decisions clarifying the point are of considerable importance to the practicing nuclear physicist. If he is assured that his good reputation and his proven loyalty and integrity will constitute adequate defense against a charge which requires reasonable proof of intent, the average scientist will not suffer unending dread when engaged in nuclear research. On the other hand, the knowledge that actions committed in all innocence may be punishable on the theory that they were performed with "reason to believe" that injury to the United States would result, cannot fail seriously to affect the vigor and initiative of independent research. It is too much to expect of even the most law-abiding physicist that he become an expert in avoiding every pitfall and quagmire of two complicated laws. This situation must inevitably work to the disadvantage of those scientists who as average men mind their own affairs and do not bother themselves unduly with legal vagaries.

The category of authorized persons: If the offense of communicating information to a person "not entitled to receive it," dealt with in section 1(d) of the Espionage Act, is construed to extend to private research in nuclear physics, the intent of Congress as expressed in the

avored. When there are two Acts upon the same subject, the rule is to give effect to both if possible. . . . The intention of the legislature to repeal 'must be clear and manifest'. . . . It is not sufficient . . . 'to establish that subsequent laws cover some or even all of the cases provided for by [the prior act]; for they may be merely affirmative, or cumulative, or auxiliary.' There must be 'a positive repugnancy between the provisions of the new law, and those of the old; and even then the old law is repealed by implication only *pro tanto* to the extent of the repugnancy.'" United States v. Borden Co., 303 U.S. 188, 198 (1939).

Atomic Energy Act, to forbid the Commission to "regulate or prescribe who may disseminate or receive" restricted data will be defeated. This problem, of primary importance to the Commission in the development of its research policy and in daily administration of the Act, lends itself, however, to a workable solution already foreshadowed in earlier discussion. It is submitted that the Espionage Act, at least as far as section 1(d) is concerned, applies to information belonging to the government, or contained in the records or files of any of the executive departments. If this provision is interpreted broadly, one may suppose it to include information produced, not only within the Federal Government itself, but to data concerning or produced by government contractors or on projects financed in whole or in part by federal funds.

It would follow, therefore, that any government department has the right to prescribe by regulation, or otherwise: (1) which of its own employees, officials, consultants, etc., shall have access to "information relating to the national defense," *including, of course, such of the restricted data of atomic energy* as may come within the purview of that particular department; and (2) which of the persons engaged on private projects financed in whole or in part by federal funds *supplied under contract by that department* shall have access to "information relating to the national defense," including, again, the restricted data of atomic energy, if such data are produced or involved in the operation of the project. This, in effect, is merely the reaffirmation, with respect to the data of atomic energy, of the right federal departments have always had to regulate their internal affairs as regards security; to prescribe terms and conditions with which their contractors must comply; to prescribe with respect to any information within their purview and for their own employees "the persons entitled to receive" such information.

It is evident, also, that despite the restrictions of the Atomic Energy Act, the Commission has the same power as any other executive department to control the dissemination of restricted data as regards its own officials, employees, contractors, or recipients of any of its funds in connection with a research "arrangement" entered into pursuant to Section 3.

It should be reemphasized that under the interpretation here proposed, section 1(d) of the Espionage Act *does not* apply to information produced in the course of wholly private research. Such information is subject, however, to all the applicable provisions of Section 10 of the Atomic Energy Act. As a result no federal agency—including the Services and the Commission—may regulate how restricted information produced in the course of private research may be disseminated or who may receive it. Any research which is supported, even partially, by federal funds is not, it will be recalled, included within the category of private research.

While the agency supplying the funds has the right to stipulate the

conditions under which persons may be entitled to receive the data produced in or used in the course of research supported in part or in whole by federal funds, it would be extremely unfortunate for the military departments to have one policy and the Commission another. The consequences of a policy of rigid compartmentalization by the military departments on the one hand and a more liberal policy followed by the Commission on the other can be readily foreseen. If the War Department, for example, should permit only a very limited group in any given federally-financed project to have access to restricted data, and the Commission on a similar project permits all the scientists concerned to have access to relevant data, the effect will be to permit each department of the government to interpret the Atomic Energy Act to suit its individual purposes.

To meet this dilemma, the Commission will no doubt find it desirable to formulate policies with respect to the control of information applicable to the conduct of all research under contract with non-federal groups which bind all federal departments. So far as the military are concerned, such policies would undoubtedly be evolved jointly in consultation between the Commission and the Military Liaison Committee, and failing agreement, by referring the issues to the President. In this manner, a consistent and homogeneous information policy for research in atomic energy would be attained and the worst of the evils mentioned above avoided. To assure compliance with these policies, and accompanying regulations, it might be desirable for the President to issue an executive order directing all departments to make their atomic energy research contracts conform to models put forth by the Commission.

CONCLUSION

It might appear at first glance that restrictions on intercourse among scientists, even in those matters relating to fundamental research and the laws of nature, do not signify greatly for the maintenance of those political freedoms we regard as the most precious part of our heritage. But even a hasty analysis reveals that no such conclusion is justified.

The provisions under discussion cannot be viewed as isolated phenomena; they are significant primarily as symptoms. For the reason which has prompted this assault on a citadel of freedom firmly established for centuries is more important than the assault itself. This reason, of course, is fear for the nation's security in a world which has mastered the technology of instantaneous mass annihilation.

If national safety is now held to require a radical abridgement of the freedom of communication among scientists, it may be held to require the abridgement of other freedoms as well. For if wars are total and the threat of destruction absolute, is there any stopping point short of total preparedness and absolute supervision over all activities which threaten

the state? The feverish images already invoked in the discussions of the control of atomic energy give a foretaste of possible legislation. Atomic bombs can be smuggled in suitcases and assembled clandestinely in sizes to destroy a metropolis. Wars in our age being ideological as well as national, we must guard as vigilantly against the fifth column as against external dangers. Fears of this sort feed on one another. Unless they can be checked at the source, they must inevitably evoke repressive measures which will go far beyond the interdiction of scientific communication.

If we are straining every nerve to keep from our suspected enemy weapons we fear he may use to destroy us, we are hardly likely to tolerate the dissemination among us of doctrines even remotely identified with his ideology. If one traitor can engineer the death of millions, the procedural safeguards which protect the accused from unjustified punishment must be relaxed lest that one guilty man go free. If we are unable to move effectively against external dangers, in our fear and frustration we will be liable to the temptations of witch-hunting at home.

If this prognosis is correct, the information section of the Atomic Energy Act is principally significant as symptom and warning. So long as the terrible danger of national destruction persists, clearly we must take such measures as we can to protect against it. But we must recognize at the same time the dangers to the fundamental values of our system which are implicit in an uncritical policy of placing immediate security considerations before everything else. If we are determined to do our utmost to preserve individual freedoms, we will scrutinize all measures which purport to serve security purposes at the expense of individual liberty, and reject those which do not appear to be essential and well-designed to serve their intended purpose. While we must accept the basic proposition that we should have all the controls over atomic energy which contribute to our security, this does not mean that we are not justified in asking pointed questions about the nature and the probable effect of each of the specific controls proposed.