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SCIENTIFIC AND TECHNOLOGICAL INFORMATION AND THE EXIGENCIES OF OUR PERIOD

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I. INTRODUCTION

Justice Douglas wrote that there are societies “where religion and mathematics are the only free segments,” warning that “[i]t would be a dark day for America if that were our destiny.”¹ That “dark day” has not occurred, nor is it imminent. Nevertheless, the Justice’s choice of mathematics as one of the last bastions for freedom of speech now appears ironic in light of the growing modern debate on society’s need to control the loss of technology to its adversaries. Many situations exist when the exchange of ideas, even in the field of mathematics, may inflict real harm to the national security interests of the United States.² Such situations raise important questions as to when, if ever, exchanges of privately generated, unclassified ideas may be regulated by the government on grounds of national security, without doing violence to important first amendment protections.

Nowhere are the legal and constitutional “stakes” higher than when national security and first amendment interests in scientific and technological (S & T) information collide. Nonetheless, a middle ground can be achieved where, through a program of commercial regulation, these important interests can be accommodated in many areas. Thus, academic research can remain competitive and

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1. *Miller v. California*, 413 U.S. 15, 46 (1973) (Douglas, J., dissenting).

2. Mathematics, for example, may have application to cryptographic research, a field that has significant national security implications. See Cheh, *Government Control of Private Ideas—Striking a Balance between Scientific Freedom and National Security*, 22 *JURIMETRICS J.* 1, 11-14 (1982).

open while the loss of the commercial and military applications of this research to our adversaries is stemmed.

Because Professor Kamenshine's views have stimulated our own thinking on the problems posed by S & T information,³ we will begin by providing our reactions to his paper and then offering our own alternative approach to the problem.

II. SOME OBSERVATIONS ON PROFESSOR KAMENSHINE'S PAPER

Any discussion of first amendment rights and national security interests must consider both the nature of the information's claim to first amendment protection and the context in which the first amendment right is asserted. Professor Kamenshine's work is helpful in its analysis of the different first amendment standards which apply to different categories of S & T speech, from fundamental research to commercial applications. This distinction is pivotal in crafting an approach which permits greater protection of S & T information related to national security than is now the case. The analysis is disappointing, however, in failing to appreciate that a first amendment right to speak and publish is not limited by the identity of the recipient of that information or of the location where that right is exercised.⁴

Finally, unlike Professor Kamenshine, we see no need to provide justification or rationale in support of the first amendment. It is the bedrock on which our society is founded. The issue is how to accommodate the essential nature of our democratic society, grounded on the first amendment, with modern day concerns of national security. In short, the individual's right to information "needed or appropriate . . . to cope with the exigencies of [his] period"⁵ must be considered in light of the national security interests of the society at large.

3. Kamenshine, *Embargoes on Exports of Ideas and Information: First Amendment Issues*, 26 WM. & MARY L. REV. 863 (1985).

4. We do not agree, therefore, with Professor Kamenshine that first amendment protections stop at the United States border. Indeed, it is well settled that the Constitution travels abroad with the United States citizen. *See Reid v. Covert*, 354 U.S. 1 (1957) (holding that a citizen retains his sixth amendment right to jury trial even while living abroad on a United States military installation). In this respect, we can find no principled reason to differentiate between the first and sixth amendments, nor has such a reason been suggested.

5. *Thornhill v. Alabama*, 310 U.S. 88, 102 (1940).

III. SYNOPSIS OF ARGUMENT

This Comment builds upon the ideas raised by Professor Kamenshine, hopefully expanding upon the article's strengths while avoiding its weaknesses. The Comment begins by identifying the doctrinal basis for the standard of first amendment review most appropriate to regulating S & T speech. Next, the Comment considers the practical difficulties in categorizing S & T speech within traditional first amendment constructs. Finally, the Comment proposes a system of regulation to accommodate the society's national security interests with the individual's first amendment rights.

Overall, the Comment is intended only as a starting point for further discussion between potential "regulators" and those affected by such regulations. We do not intend to suggest that the regulatory scheme suggested here is under careful consideration by the government at this time. But issues of first amendment and national security concern must both be dealt with in terms of the "exigencies" of our own period. Unless we begin to establish a thoughtful system capable of balancing national security and first amendment concerns in a rational manner, scientific and technological information will be subjected to sporadic and ineffectual control, to the detriment of both the national security and the needs of the scientific and technological community.

IV. STANDARDS OF REVIEW

The first amendment is profoundly and inexorably intertwined with the nature of our democratic society and fundamental to its successful functioning. Professor Kamenshine's paper notwithstanding, it is well established that the protection afforded by the first amendment to speech and press is not limited to "political expression or comment upon public affairs."⁶ Instead its protection extends to "works which, taken as a whole, have serious literary, artistic, political or scientific value, regardless of whether the government or a majority of the people approve of the ideas these works represent."⁷ Attempts to regulate such speech have been

6. *Time Inc. v. Hill*, 385 U.S. 374, 388 (1967).

7. *Miller v. California*, 413 U.S. at 34.

strictly scrutinized by the courts,⁸ and, in any case, are not permitted absent a showing of significant harm to society.⁹

The relationship of commercial speech to first amendment protections is less well-defined, but commercial speech appears subject to a less rigorous standard of first amendment review. In *Virginia State Board of Pharmacy v. Virginia Citizens Consumer Council, Inc.*,¹⁰ the Supreme Court squarely faced the question of whether there was an exception to first amendment protection for "commercial speech." In defining what the issue was *not* in that case, the Court stated that the speaker did not want to "editorialize on any subject, cultural, philosophical, or political," "report any particularly newsworthy fact," or "make generalized observations even about commercial matters,"¹¹ which matters presumably would have been afforded full first amendment protection. In contrast, "commercial speech" was identified as including information which does "no more than propose a commercial transaction."¹²

The Court in another decision viewed commercial speech as "related solely to the economic interests of the speaker and its audience."¹³ The standard of review for such commercial speech is the "intermediate" level of scrutiny. Under this intermediate level of scrutiny, suppression is permitted whenever it "directly advances" a "substantial government interest" and is "not more extensive than is necessary to serve that interest."¹⁴

Two levels of first amendment protection can be identified: one applicable to pure expression encompassing basic scientific and technological research, and a second applicable to commercial embodiments of such speech. Thus, the nature and use of the subject matter will determine the applicable level of first amendment protection.

It is, however, the individual who possesses the first amendment

8. See *New York Times v. United States*, 403 U.S. 713 (1971); *Near v. Minnesota*, 283 U.S. 697 (1931).

9. *United States v. Progressive, Inc.*, 467 F. Supp 990 (W.D. Wis. 1979).

10. 425 U.S. 748 (1976).

11. *Id.* at 761.

12. *Id.* at 762 (quoting *Pittsburgh Press Co. v. Pittsburgh Comm'n on Human Relations*, 413 U.S. 376, 385 (1973)).

13. *Central Hudson Gas & Electric Corp. v. Public Service Comm'n of New York*, 447 U.S. 557, 561 (1980).

14. *Id.* at 566.

right. And, although the way in which that right is exercised will affect the level of protection it receives, nevertheless, Professor Kamenshine's suggestion that the right can be lost or the level of protection changed depending on *where* that right is executed has neither practical nor legal support. We cannot agree with the notion that the first amendment does not protect the dissemination of information to foreign individuals or governments, even though protection would be provided if that same information were going to a mixed domestic-foreign audience.¹⁵ Moreover, first amendment protection is afforded to both the source and the recipient of a communication.¹⁶ There is both a right to disseminate and to receive information. Thus, if either the speaker or the recipient is an individual enjoying first amendment protections, the speech will be protected. Professor Kamenshine has, therefore, posed the wrong question in distinguishing between foreign and domestic recipients of information.¹⁷ Under similar circumstances, the first amendment equally protects communications going to both categories of recipients.

Negative practical implications also arise in drawing distinctions between foreign and domestic recipients. Is it reasonable to assume that one could speak to a domestic audience without "leakage" to the foreign audience? If such "leakage" were to occur, would the speaker and his information thereby gain first amendment protection? Would such subsequently obtained protection be applied retroactively? One also can imagine the ways a foreign audience could circumvent Professor Kamenshine's distinction: the foreign audience simply might include an American to escape "exclusivity" or

15. See Kamenshine, *supra* note 3, at 873-81. An argument may exist, however, that for commercial speech related to an unlawful activity (e.g., violation of export control regulations), first amendment protection is lost altogether for certain foreign disseminations of S & T information. See *Central Hudson Gas*, 447 U.S. at 563.

16. *Virginia Pharmacy*, 425 U.S. 748, 756 (1976).

17. See Kamenshine, *supra* note 3, at 873-81. Similarly, in *First National Bank of Boston v. Bellotti*, 371 Mass. 773, 783 (1977), the Supreme Judicial Court of Massachusetts also posed the wrong question by attempting to distinguish between those asserting first amendment rights. In its opinion reversing the Massachusetts Court, the United States Supreme Court indicated that "the constitution often protects interests broader than those for the party seeking their vindication," and the question should be whether the state regulation "abridges expression that the First Amendment was meant to protect." 435 U.S. 765, 776 (1977).

might travel to the United States to meet the speaker on his own ground.

Hypothetical situations aside, the distinction between foreign and domestic audiences is not capable of application in the real world.¹⁸ This conclusion was foreshadowed in *Virginia Pharmacy* where the Court noted that "we are aware of no general principle that freedom of speech may be abridged when the speaker's listeners could come by his message by some other means, such as seeking him out and asking him what it is."¹⁹ Although Professor Kamenshine does not argue for this "general principle" in denying first amendment protection to foreign dissemination of information, the effect of his construct is that foreign listeners will be compelled to obtain the information by some other means. One would have to be naive to believe that a "withering away" of the distinction between foreign and domestic dissemination would not occur in relatively short order. Moreover, the legal problems of such an arrangement have been considered and dismissed, albeit in dicta, in *Virginia Pharmacy*.²⁰

V. DIFFICULTIES OF CATEGORIZING SCIENTIFIC AND TECHNOLOGICAL SPEECH

When the foregoing legal analysis is applied to scientific and technological speech, unusual difficulties arise. Many of these difficulties result from a failure to properly conceptualize the true nature of S & T speech. Professor Kamenshine and other commentators appear to believe S & T speech is either "pure speech" or "commercial speech."²¹ To the contrary, we believe S & T speech can be either pure speech or commercial speech or, at different times, both. This variation is possible because S & T speech is dynamic in nature: it moves along a broad continuum from funda-

18. It is not at all clear conceptually why Professor Kamenshine could not subject all disseminations of S & T information to his "alternative analysis" whether that dissemination is directed to foreign, domestic, or mixed domestic/foreign audiences. Kamenshine limits that analysis to S & T communications reaching a mixed domestic/foreign audience. See Kamenshine, *supra* note 3, at 873-81.

19. 425 U.S. at 757 n.15.

20. See generally 425 U.S. at 769-71 (discussing alternative advertising restrictions for pharmacists).

21. See Kamenshine, *supra* note 3, at 872.

mental research, a form of fully protected speech, to commercial speech. All S & T information cannot be classified into one or the other category. In fact, much S & T information can be expected to "develop" over time from pure research to practical application whether for commercial or military use.

The dynamic quality of S & T information creates special problems when attempting to determine what level of first amendment protection will apply at any given point in time. S & T information is part of a process, a constantly changing flow of data extending from the initial discussion of an idea to the reduction of that idea to technical data forming the core of an exploitable product (whether for commercial or military purposes). For this reason, although (unlike Professor Kamenshine) we believe that all S & T information is entitled to some level of first amendment protection throughout its life, we also believe that the level of protection will change as an idea ripens into practical application.

This conceptualization of S & T information as part of a dynamic process raises several issues: (1) identification of the point at which information is "reduced" to commercial application, thus subject to the lesser protection of commercial speech; and, because the dynamic nature of S & T information allows great flexibility, (2) the possibility of abuse as the level of first amendment protection is reevaluated when circumstances change. One should be aware of the risk, stated in *Ohralik v. Ohio State Bar Association*,²² that the failure to distinguish between commercial and non-commercial speech "could invite dilution, simply by a leveling process, of the [First] Amendment's guarantee with respect to the latter kind of speech."²³ The "dynamism" of this S & T continuum must be applied carefully to avoid clouding the distinguishing characteristics of the two types of speech and their respective levels of first amendment protection.

The most important step in using the "dynamic continuum" model is the determination that the idea has become "commercial" at a certain time. The difficulties inherent in attempting to precisely fix this point are formidable, but no greater than the issues raised in determining the appropriate level of first amendment

22. 436 U.S. 447 (1978).

23. *Id.* at 456.

protection. Some useful analysis is available in recent court opinions, discussed below, where other analytic constructs have been employed.

VI. REVIEW OF RECENT CASE LAW IN LIGHT OF THE "DYNAMIC CONTINUUM" OF SCIENTIFIC AND TECHNOLOGICAL SPEECH

We begin with the proposition that, under most circumstances, S & T ideas not yet embodied in practical applications should be provided the same protection as political speech, thus government regulation of such speech should be strictly scrutinized. These S & T ideas are similar to the "newsworthy facts" and "generalized observations" judged not to be commercial speech in *Virginia Pharmacy*.²⁴ Such ideas would most likely, but not necessarily, be of a general or fundamental nature. Most importantly, however, the ideas would not have identifiable commercial applications. In contrast, once the determination is made that a commercial application does exist, even "basic concepts" would be afforded a lower commercial level of protection.²⁵

Three recent federal court opinions dealing with S & T information, *United States v. Progressive, Inc.*,²⁶ *United States v. Van Hee*,²⁷ and *United States v. Edler Industries*,²⁸ use a different analysis but support the conclusion that, once reduced to practical application, the extent to which the government can regulate S & T information is quite broad and certainly beyond that which is possible for fundamental S & T speech. A review of these cases shows that if the "dynamic continuum" model had been used in each instance, the same result would have been obtained, but on a theoretical basis which could be applied more easily in subsequent cases.

In *Progressive*, the court characterized the information as "con-

24. *Virginia State Bd. of Pharmacy v. Virginia Citizens Consumer Council, Inc.*, 425 U.S. 748, 761 (1976).

25. The mere fact that certain S & T information may be sold for profit does not cause that information to gain a commercial application and to lose the first amendment protection to which it would otherwise be entitled. See *Virginia Pharmacy*, 425 U.S. at 761.

26. 467 F. Supp. 990 (W.D. Wis. 1979).

27. 531 F.2d 352 (6th Cir. 1976).

28. 579 F.2d 516 (9th Cir. 1978).

cepts vital to the operation"²⁹ of nuclear weapons. An analysis of the opinion shows that the court had become convinced that the S & T speech was too linked to dangerous practical application to be given strict scrutiny. The court reasoned that, where nuclear weapons are concerned, "once basic concepts are learned, the remainder of the process may easily follow."³⁰ Seemingly the court concluded that basic concepts led inevitably and immediately to practical application in the area of nuclear research. The Court was, therefore, willing to enjoin publication of that information. The ready availability of those concepts to the public did not change the court's opinion that the release of the information would have an adverse effect on the United States' national interest. The court characterized the S & T process as one in which the "[p]ursuit of blind alleys or failure to grasp seemingly basic concepts have been the cause of many inventive failures,"³¹ implying that even concepts that do nothing more than encourage the abandonment of a futile line of research could be deemed vital to United States interests and enjoined. That the technical information in question might enable a non-nuclear power to obtain a nuclear capability sooner than otherwise be possible concerned the court, which stated that the consequences of rendering the wrong decision "involve human life itself and on such an awesome scale. . . . A mistake . . . could pave the way for thermonuclear annihilation for us all."³²

The *Progressive* court examined the "disparity of risk" between the government's request for a prior restraint on national security grounds and the purported infringement of first amendment rights of the press to stimulate public debate.³³ The court viewed the S & T information as fully protected speech, subject to the strict scrutiny standard of review. The court ultimately found that the publication of the information would cause "grave, direct, immediate and irreparable harm to the United States."³⁴

Similarly, under the "dynamic continuum" model such information also would have been withheld. The information would have

29. *Progressive, Inc.*, 467 F. Supp. at 993.

30. *Id.* at 994.

31. *Id.*

32. *Id.* at 995-96.

33. *Id.* at 996.

34. *Id.*

been identified as "commercial speech," however, with less protection because those basic concepts sought to be withheld by the government related to the essential design and operation of a nuclear weapon. As it stands, the *Progressive* opinion assumes too much. It sweeps all nuclear research within its ambit, driven by the understandable concern for the damage potential such research carries with it. The dynamic continuum provides a way to protect pure research and theory (when they stand alone without any practical application) from the broad sweep of the opinion.

In *Edler*³⁵ and *Van Hee*³⁶ technical data had been exported without an export license. Only *Edler* deals specifically with first amendment concerns, but both cases provide additional clues on how courts will analyze the characteristics of S & T information in applying first amendment standards. In *Edler*, the technical data concerned unclassified information on tape-wrapping and carbon materials, both of which had military and civilian applications. *Van Hee* concerned blueprints and technical knowledge of a military vehicle. Under the "dynamic continuum" model, both situations involve practical applications of fundamental research, and thus constitute commercial matters subject to a different standard of review than for pure speech.

These two courts reach results identical to those the "dynamic continuum" model would produce. The courts' factual analyses are based on distinctions useful to the dynamic continuum model, although the *Edler* court refused to view the exported technical data as "commercial speech," stating that the "contours of freedom of speech in the commercial realm are highly unsettled."³⁷ Instead the court analyzed the government regulation of data assuming full applicability of the first amendment; then it distinguished between conduct and speech in applying first amendment protections. The informational aspect of *Edler Industries'* actions in violating export regulations was minor in comparison to their other conduct: *Edler* employees had (1) demonstrated the techniques used to French engineers, (2) experimented with the application of those techniques to the different materials used by the French firm, (3)

35. *United States v. Edler Indus.*, 579 F.2d 516 (9th Cir. 1978).

36. *United States v. Van Hee*, 531 F.2d 352 (6th Cir. 1976).

37. *Edler*, 579 F.2d at 520.

observed and commented on the techniques used by the French firm, and (4) produced sample pieces in configurations similar to those utilized in missiles.³⁸ Thus, the court focused on the intent of the export regulations—to control conduct—with the result that the incidental limitation on expression was considered to be fatal.³⁹

The conduct/speech distinction is useful in determining when speech has crossed the line from research to practical application. Speech translated into conduct is the very essence of the distinction between fundamental and applied research. The court in *Eddler*, however, was wary of the distinction it applied. The court warned that “an expansive interpretation of technical data relating to items on the Munitions List could seriously impede scientific research and publishing and the international scientific exchange”⁴⁰ assuming that “international scientific exchange” is beneficial *sui generis*. Thus, this court opined that S & T information “that of itself is without any substantial military application”⁴¹ or that is only “vaguely useful for the manufacture of arms”⁴² could not be regulated. This arguably is an application of the dynamic continuum model.

Not trusting the objectivity of such a test, however, the court would demand that the exporter knew or had reason to know that the S & T information to be exported was intended for a military application by the recipient.⁴³ Information that simply would help in a process that led to the final product would not necessarily be regulated.⁴⁴ The court found such limitations necessary to adhere to the regulation’s purpose and “to avoid serious interference with the interchange of scientific and technological information.”⁴⁵ These limitations, however, would expand merely commercial speech into speech entitled to a strict scrutiny standard of review. Such a position may not be practical. Moreover, the need for such protection might be avoided if the individual inventor could deter-

38. *Id.* at 519.

39. *Id.* at 520.

40. *Id.* at 519.

41. *Id.* at 520.

42. *Id.* at 521.

43. *Id.*

44. *Id.* at 522.

45. *Id.* at 521.

mine whether his research might be reduced one day to a practical application, and a lesser level of protection. This analysis is the essence of the regulatory approach, described in Part VII, below.

The court in *Van Hee* broadly construed the same definition of technical data that had been narrowly construed in *Edler*.⁴⁶ As in *Edler*, however, the *Van Hee* court focused on the actual conduct of the exporters more than on any identifiable information they provided. The blueprints of the military vehicle and its component parts taken from the United States to Portugal reasonably fit into the category of "technical data." Such knowledge is no longer fundamental research, subject to the highest form of protection as a form of scholarly debate.

The Court's assessment that the "technical knowledge" of the team sent to Portugal to build the vehicle was also "technical data," however, is troublesome conceptually, although the regulation of such activity arguably may have been proper.⁴⁷ The team was composed of Americans previously involved in the development of the United States military version of the armored vehicle. Yet there was no evidence that their knowledge consisted of anything than widely published and generally understood information. Even if their knowledge had been merely general knowledge, according to the court, the statutory exemption for unclassified publicly available information would refer only to information in published form.⁴⁸ Thus, the knowledge would be subject to regulation in all cases. Under the "dynamic continuum" model, one must make a determination whether this "knowledge" related to a commercial or practical process.

Thus, the *Van Hee* opinion raises an important problem: the knowledge of the team was never analyzed in depth. Some team members might have had knowledge so general or so removed from the specific commercial processes used in producing the vehicle

46. *Van Hee*, 531 F.2d at 356. The term "technical data" as used in Category XVIII of the U.S. Munitions List means any professional, scientific, or technical information relating to arms, ammunition, and implements of war which includes any model, design, photographic print or negative, plan, specification or drawing, engineering performance characteristics data, or similar information which could enable the recipient to use, produce, operate, maintain, repair or overhaul the article to which these data relate. *Id.*

47. *Id.* at 356-57.

48. *Id.* at 357.

that their knowledge would be fully protected under the first amendment. The implication of *Van Hee* is that the relationship of the S & T ideas to a specific exploitable technology is not as important as the conduct of the holder of those ideas. Such a view, if carried forward, would result in overly broad regulation of S & T activities and would raise fundamental first amendment concerns.

These three cases, while not providing clear distinctions between the varieties of S & T speech—the two cases that do address first amendment concerns assumed the speech was fully protected—nonetheless describe meaningful characteristics of more-protected and less-protected S & T information. The focus of the *Van Hee* and *Edler* decisions on conduct indicates that information which promotes a certain conduct merits less protection than information not promoting such conduct. To receive less protection, that conduct, however, must involve reducing a concept to a practical application. If such conduct is not possible or has not yet occurred, the information involved is entitled to the highest level of protection.

Information that presumptively would be afforded more protection includes information normally exchanged internationally and information without substantial military or commercial application. Whether such information would be given full first amendment protection under the “dynamic continuum” model would depend on whether a practical commercial or military application of that information existed and would have to be examined on a case-by-case basis.

VII. A PROPOSAL FOR S & T SELF-REGULATION OF SCIENTIFIC AND TECHNOLOGICAL INFORMATION

As the above cases demonstrate, the principal problem in applying the “dynamic continuum” analysis arises when a determination must be made as to where on that continuum a given item of S & T information resides. This determination will, of course, also determine the level of first amendment protection to which the information is entitled. How is this determination to be made and of what significance is the fact that the theoretical S & T information of today may be the applied S & T information of tomorrow? Should the stricter standard be applied until a practical application results even though it may then be too late to recapture infor-

mation vital to the national security?

Assuming the "dynamic continuum" model is viable and a determination realistically can be made of the commercial applicability of S & T ideas early in the development of these ideas, a regulatory system can be proposed for use with some S & T information, such as mathematical research with cryptographic application. The system would consist of a prescreening process, whereby scientists voluntarily would submit certain ideas, believed to have potential commercial or military application, to a government panel. The panel would either grant, refrain from granting (on grounds of no perceived commercial potential), or refuse to grant a license for that idea and its future potential use. Submission of the ideas in the first instance would be purely voluntary. But failure to submit such an idea might have implications later when production licenses were sought. For example, licenses to produce new equipment might be denied if early publishing rendered the idea unsecure or otherwise vulnerable. This system would allow the government to evaluate ideas which ultimately would appear embodied in commercial products and to decide beforehand whether such ideas, if later reduced to practical application, would be subject to restrictions.

Such a voluntary system would allow those who engage in scientific research to determine whether their research is ultimately intended for commercial application or whether their research is, in the purest sense of the word, fundamental scientific inquiry without any intended commercial application.⁴⁹ The advantage to the system, however, is that the scientific community will know, almost from the conception of the idea, whether that idea or its eventual embodiment in a product will be subject to export controls. By gaining a ruling from the government panel that there was no perceived or intended commercial potential, that idea would have full

49. Of course, the scientist who discovers the "idea" may not be the one who decides to exploit it. Even then, the idea may become "exploitable" before it is actually reduced to practical application, and the question arises whether it would be the burden of the discoverer to recognize its commercial potential at that time. Other questions not yet ready to be answered are whether the scientist-discoverer becomes "liable" if the idea is obtained by a foreign market and exploited to the detriment of the United States and whether the system should be totally voluntary (encouraged through educating scientists on the potential threat to United States interests) or tied into a mandatory regulatory framework.

first amendment protection. If the panel determines that a commercial potential for the idea exists, the idea would gain the commercial speech "intermediate" standard of review whether or not the export license is granted.

We believe that such a prescreening and licensing procedure would pass constitutional muster.⁵⁰ We note, additionally, that the court in *Progressive* was impressed by the Federation of American Scientists' suggestion that "non-legal resolution," outside "the glare of a judicial spotlight," is the best way to accommodate issues involving technologies that have both national security and public policy concerns.⁵¹

VIII. CONCLUSION

A crucial dilemma faces our society: we must encourage free and energetic discussion of S & T ideas to retain the competitive vigor of our scientific community.⁵² At the same time, we do not want to allow this discussion to "give away" S & T information which will one day be essential to our national security. The question becomes that of knowing which ideas must be protected early enough in their lives so that when they at last achieve practical application of national security significance they have not been conveyed—and thus lost—to our enemies.

Currently, the government often is faced with the impossible situation of attempting to control a product long after the essential element of that product, the basic idea, has been conceived, and long after information about that idea has been freely disseminated and, thus, its national security value lost. After all, the government often is limited to controlling the product or technical data relating to that product only under the authority of the appropriate export regulations. At that point, the "idea" is embodied in a practical application, whether military or commercial venture,

50. In *Central Hudson Gas*, the Court noted that the Commission could consider a system of previewing advertising campaigns to ensure that they will not defeat a state policy. 447 U.S. at 571.

51. *Progressive*, 467 F. Supp at 997. The Federation cited the example of recombinant DNA, which "could someday surface means of destruction that ought not be published while, at the same time, provoking crucial issues of public policy that badly need to be publicly discussed."

52. See Wilson, *National Security Control of Technological Information*, 25 JURIMETRICS J. 109 (1985).

and should be subject to the "commercial speech" standard of scrutiny. The licensing system outlined above permits a more rational handling of S & T ideas that are key to our national security, while at the same time providing unambiguous guidance for those involved in the dissemination of S & T ideas.