STIMULATING INVENTION DISCLOSURES BY FACULTY RESEARCHERS

...A Guide for the University Invention Administrator

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By

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I. ABOUT THIS MANUAL

"Patents? I'm not interested in patents. I'm a research scientist, and a researcher's job is to search out new knowledge and make it widely -- and freely -- available. Patenting is inconsistent with this. Besides, it just means a lot of red tape and paperwork. Let the university's administrators and lawyers worry about patents".

If the faculty at your institution is in any way typical, then you are very likely familiar with this attitude. We at Research Corporation encountered it repeatedly during a three-year study for the National Science Foundation and the National Bureau of Standards that was completed in December 1977. Conducted by Research Corporation's Invention Administration Program group at eight selected academic institutions across the United States, the study revealed that faculty researchers are, by and large, unaware of the importance of the patent system in transforming their research results into products and processes that will benefit the public. The study revealed a considerable lack of information, as well as a number of important misconceptions, such as "I can't patent because the government supports my research" and "I want to publish, and, if I patent, I can't publish."

The import of these attitudes is that inventors often fail to recognize when they have made an invention, patentable or otherwise. Consequently, their inventions are unlikely to be brought to the attention of those university officials charged with evaluating patent potential in time for effective action to be taken. The result: Many inventions by faculty investigators on Federally-supported projects are left unpatented and frequently remain undeveloped for the public benefit.

This manual is intended as a guide for university administrators who wish to set up in-house programs to help faculty members in the recognition of inventions and to increase the flow of their disclosure. Aimed at both senior administrators and those personnel who are charged with the actual implementation of such programs, the manual presupposes little or no prior experience with the handling of invention disclosures at academic institutions.

However, it will not treat in detail the evaluation of disclosures for their patentability, the filing or prosecution of patent applications, or the licensing of issued patents. For reasons that will be explained, most institutions are likely to find that these steps are best left to outside specialists. Rather, the manual draws upon the experience gained during the recent Research Corporation study, where an intensive, continuing program of seminars and individual meetings with "invention-

prone" faculty was tested and found successful in increasing patent awareness and overcoming the kinds of misconceptions mentioned above. Where the program was accepted with enthusiasm and a sincere effort was made to carry it through, a substantial increase in disclosures occurred. We believe the program can be readily adapted to the needs of other institutions.

II. PATENTS: THE HIDDEN RESOURCE

At the outset, it is important to recognize the benefits of patenting, not only because these benefits provide the administrative justification for initiating a program to increase disclosures, but, also, because they must be communicated to a generally skeptical and/or unaware faculty. Briefly:

* In many fields (pharmaceuticals being a striking example), prospective manufacturers find it economically unjustified to undertake the development of an invention unless they are assured the protection for their extensive investment that only a patent can provide. Thus, rather than being incompatible with research and teaching, patenting is often the best and, perhaps, the only means by which a university inventor can see the fruits of his or her research developed into a useful product or process for the public.

* Patenting offers the inventor and the institution a way to prevent social abuses to which an invention may be subjected.

* Since research supported by Federal granting agencies carries both a responsibility and an obligation for making formal invention disclosures in order to make discoveries available to the public, reporting of inventions resulting

from the research becomes an important obligation of every inventor and every institution.

* The transfer of technology to industry through licensing patents increases a faculty researcher's exposure to that industry and its needs, thus benefitting both the investigator, his institution, and the industry.

* Financially successful inventions will return funds to a university that can then be applied toward the support of further research in the inventor's area of interest or those of other faculty researchers. (Note that $100,000 annual royalty income is equivalent to the interest on $1.0 to $2.0 million in unrestricted endowment funds, for instance.)

III. ESTABLISHING A PROGRAM TO STIMULATE INVENTION DISCLOSURES

A. Setting A Goal

1. Analysis of the Institution's Objective

Before embarking on the establishment of a Program to stimulate invention disclosures, the institution should consider exactly what it wishes to accomplish under the Program and should review the factors having a major bearing on the structure and size of the organization needed.

A liberal arts college will not have the potential to generate the same number or as broad a scope of invention disclosures as will a university which includes such entities as a Health Science Center, a College of Dentistry, a College of Engineering or an Agricultural Experiment Station in addition to the usual science departments.

Consideration should also be given to the level to which the administration wants to become involved in the research efforts of its faculty.

Decisions on these basic concepts will determine many of the steps that must be taken in establishing a Program that will

function effectively at each institution at the optimum level of activity.

2. Potential Disclosure Output

Several organizations involved in the handling of inventions from academic institutions have found that, as a rule of thumb, one should expect to have one invention disclosure surface for every $1,000,000 per year of contract or grant money received. Based on this criterion the institution should probably consider establishing a Program to accomplish the minimum levels to be described later. Unless the institution's research budget is over $20,000,000 annually, it may not be able to sustain the operation of a complete Program.

3. Utilization of Program Results

The minimum results obtained from this Program should be a substantial increase in the number of invention disclosures generated, and, correspondingly, the number of patents obtained and licensed. This Program can:

* Make the fruits of academic research available to industry and the public through the patent system more effectively than through scholarly publication alone.

* Increase the scope and depth of the interface between the academic research community and industry through the licensing of academic inventions.

* Provide a potential source of revenue to both the faculty inventor and the institution.

* Provide a mechanism for compliance with the invention disclosure requirements of sponsored research grants and contracts.

Each institution should review these probable results to determine the relative merits of each and whether the institution wishes to place greater emphasis on any one or another of them. Some institutions consider the need for professional recognition to outweigh any possible financial gain and therefore place little emphasis on developing disclosures for patenting and licensing. Conversely there are institutions whose royalty income has reached significant levels. The decision involves certain trade-offs which must be carefully weighed.

4. Faculty/Administration Interface

In establishing the Program an Administrator must be charged with the responsibility for its performance. This individual will, of necessity, have to establish effective communication with many faculty researchers. As a minimum, the Administrator serves merely as a focal point receiving invention disclosures, arranging for their evaluation, and reporting results to sponsors and faculty inventors. As a maximum, the Administrator becomes involved intimately with the researcher, asking questions, requesting written disclosures, and, in general, following

closely all research projects from which potential inventions may arise from their inception to their final disposition.

With these extremes in mind the institution's administration should decide whether it wishes to:

* Take whatever steps are necessary to insure that the greatest number of invention disclosures is generated promptly and handled effectively to final disposition;
* Take a completely passive stance merely offering minimum service in handling invention disclosures in compliance with the requirements of the funded grants and contracts; or,
* Take an intermediate position between these two extremes.

The establishment of any Program will require some expenditure of money, the amount depending on the scope of the program and how it is to be implemented. It is important to remember that the initial financial return on academic inventions is relatively small and subject to relatively long time lags. Ten to fifteen years of financial input may be required before break-even will occur. Since one or two out of one thousand invention disclosures will produce more than $50,000 in royalty income per year after initial marketing, the financial input must be related to this possible return.

B. Creating the Organization

Before proceeding with this portion of the guide we believe it would be advisable for the reader to obtain and review some recent publications prepared by the National Association of College and University Business Officers. (1) This association has compiled in three specific documents information that can be of great value to an institution interested in either instituting or revising a program to further the disclosure of inventions. These brochures are entitled:

Patent and Copyright Policies at Selected Universities
Patents at College and Universities; ADMINISTRATIVE SERVICE/ Supplement 2:4:1
Survey of Institutional Patent Policies and Patent Administration; ADMINISTRATIVE SERVICE/Supplement 2:4:2

1. The Patent Committee

A formal institution-wide Patent Committee, consisting of representatives from both faculty and administration, is essential to an effective Invention Stimulation Program. The Committee should be responsible for the following activities:

* Formulation and periodic review of an institutional patent policy.

(1) National Association of College and University Business Officers, One DuPont Circle (Suite 510), Washington, D.C. 20036

* Reviewing and deciding matters dealing with ownership rights in inventions made by faculty members.

* Providing general guidance to the Invention Administrator.

The Patent Committee should not be expected to undertake the actual evaluation of invention disclosures.

2. The Patent Policy

A formal institution-wide patent policy is also essential to an effective Invention Stimulation Program. This patent policy, best developed jointly by faculty and administration, reviewed by the university counsel, and approved by the institution's governing bodies, should provide for at least the following:

* The establishment of an Office of Invention Administration under the direction of an Invention Administrator.

* Specifying precisely the percentage of royalty income that will actually return to the inventor himself.

* Clearly spelling out conditions of patent ownership.

* The release to the inventor of any inventions where the institution has determined that no ownership rights are vested in the institution.

* How the institution will employ its share of the income.

* A procedure for evaluation, patenting and licensing of inventions.

The patent policy should be printed and widely distributed to the entire faculty and other employees to be covered by the

policy. Acceptance in writing of the patent policy and agreement to be bound by it should be required, particularly of new faculty members, as one of the conditions of employment.

3. The Budget

The establishment of an Office of Invention Administration under the responsibility of a designated Invention Administrator requires financial obligations proportionate to the expected level of activity. Funding for this office should be included in the institution's annual budget.

The amount of funding necessary will depend on basic decisions made by the institution's governing board. The most important decision concerns the type and level of activity expected of the Administrator. Is the office to be merely an information center; is it to furnish a complete service to faculty inventors; or is it to function at some intermediate level between these extremes?

A second fundamental decision is whether the services of an outside patent management group (or individual) are to be used, whether the management of inventions is to be handled solely by institution personnel, or by some combination of the two.

A third decision concerns the depth and breadth of the activity the Administrator is to enter into in developing an awareness of inventions inherent in faculty research results and an understanding of the proper use of the patent system. If this is to be an active endeavor, rather than passive, a higher level of funding will be necessary.

When these basic decisions have been made, a realistic, detailed budget can be drawn up. Drawing up the budget should involve both the Administrator and the institution's business office.

Since this report is directed primarily to setting up and operating an invention and patent awareness program, expense items for handling submitted invention disclosures are of lesser interest. Nevertheless, it is important to have an understanding of the magnitude of these other costs, since the Office of Invention Administration will be obligated to administer submitted disclosures through the patenting and licensing steps.

Approximate costs in 1978 dollars for an Office of Invention Administration are given in Table I. In developing this table the assumption was made that a strong invention and patent awareness program would be developed, and that practically all of the follow-up needed to patent and license disclosures would be done using in-house staff, except for filing and prosecuting

patent applications themselves, which would be done by patent attorneys or patent agents in private practice. It has also been assumed that about 10% of the disclosures received will be accepted for patenting and licensing, a ratio which appears to be about average for most institutions.

The costs have been estimated at three levels of overall activity: 20 or fewer invention disclosures received annually, 21 to 50, and 51 or more. Recalling the previous correlation of one disclosure per year per million dollars of funding, these three categories represent annual funding levels of up to $20 million, $20 to $50 million, and over $50 million, respectively.

The estimated budgets include these specific cost items necessary to undertake a reasonably active invention and patent awareness program, but do not include general overhead:

* Invention Administrator salary.
* Supporting secretarial and clerical staff salaries.
* Fringe benefits.
* Publication writing, printing and distribution expense.
* Travel costs.
* Telephone, telegraph and office supplies.
* Professional society memberships, journal subscriptions, and attendance fees for professional meetings.
* Office space and equipment.

The additional item for patent application filing and prosecution, and for patent maintenance is included primarily for informational purposes.

Table I

OFFICE OF INVENTION ADMINISTRATION

ESTIMATED ANNUAL BUDGETS

Number of Invention Disclosures Submitted:	Under 20	21 - 50	51 and Over
Salaries:			
Patent Administrator	$12,000	$ 24,000	$ 36,000
Supporting Staff	10,000	20,000	30,000
Fringe Benefits	7,000	14,000	22,000
Total Salaries	$29,000	$ 58,000	$ 88,000
Travel	5,000	10,000	15,000
Patent application filing and prosecution, and patent maintenance	25,000	50,000	75,000
Association memberships including attendance at meetings	500	500	500
Printing and distribution of internal public relations material	1,000	1,000	1,000
Telephone, stationery, reproduction, etc.	1,000	1,000	1,000
Office space and equipment	3,000	3,000	3,000
TOTALS	$64,500	$123,500	$185,500
Amount of time for Inventions Administrator:	1/3	2/3	Full time
Number of full-time supporting staff:	1	2	3
Approximate number of inventions per year on which patent applications will be filed:	2	4	6

4. The Office of Invention Administration

The primary responsibility for the implementation of the patent policy of the institution should reside with this Office. The Office provides the interface between the faculty researcher - inventor and the institution administration relating to inventions. Additionally, it performs a similar function between the faculty and the Grants and Contracts Office in those cases where sponsored research and development grants include patent clauses.

Generally speaking the objectives of the Office of Invention Administration are to:

* Provide an available and easily used communications center for receiving and processing invention disclosures.
* Provide accurate and complete information about the patent policy of the institution, the functions of the Office and the benefits accruing to both faculty and institution by complying with the patent policy of the institution.
* Act as liaison between faculty researchers, institution administrators, funding sources, and any other necessary internal and external organizations and individuals in matters relating to ownership of inventions and patent rights.

The Office should act as quickly and decisively as possible on each invention disclosure submitted. Whatever action is taken

by the Office on such submissions should be reported promptly to the inventor within four weeks of receipt, if possible.

For the benefit of the faculty inventor the Office should include:

* A centralized location for receiving and handling questions about the institutional patent policy.
* A receiving point for invention disclosures submitted for evaluation.
* A centralized source of information on the status of both disclosures and accepted inventions.
* A person who can assist in complying with the reporting of inventions to agencies providing grants and contracts.

Depending on the scope of activity placed by the administration on the Office, it should be charged with providing some or all of these services:

* Implementation of the procedures developed by the Patent Committee.
* Continuing contact with any outside patent management organizations.
* Selecting patent attorneys in those cases where the institution handles its own inventions.
* Providing a communications link between inventors and patent attorneys during filing and prosecution of patent applications.
* Selection of potential licensees and negotiation of licenses.
* Monitoring of existing licenses to assure licensee compliance with license terms.

* Advising on the administrative handling of any litigation problems.

* Maintaining appropriate liaison between Federal granting agencies and the institution.

* Reviewing clauses in contracts and grants dealing with ownership rights and making a preliminary determination of their acceptability.

* Making certain that the terms in contracts and grants relating to ownership rights are fulfilled.

5. The Invention Administrator

An institution cannot expect effective results from the operation of an Invention Administration Office if it asks an already overburdened administrator to "fit" this additional activity in among numerous other responsibilities. Done right, the job of administering the Program requires -- at a minimum -- one professional spending one-third of his or her time supported by a full-time secretary, whether the institution is a narrowly based technical school or a broadly based university.

The Invention Administrator need not be an attorney, patent or general, because the temptation might be great to engage personally in patent prosecution and licensing. These are complex activities and are best left to highly trained and experienced outside specialists with adequate time for concentrating on these specific problems.

A background in some scientific or technical area is desirable, and prior industrial experience is helpful. The Administrator should feel comfortable when talking with technically oriented people. In addition, he should be familiar with administrative protocol since he acts as a communications link between faculty inventors, top level institutional administrators, government bureaucrats and industrial administrators and executives.

The principal role of the Invention Administrator involves:

* Informing faculty members about the institutional patent policy.
* Convincing faculty members that the institution has an equitable and workable policy for handling patentable inventions.
* Demonstrating that he is able, willing and competent to assist inventors with administrative matters so that their paths may be as smooth as possible throughout the disclosure, patent application filing and prosecution processes.

In carrying out his role the Invention Administrator should be reasonably familiar with current industrial practices, particularly with regard to marketing, and have the ability to establish good rapport with faculty inventors, helping them recognize when they have made inventions and exploring with them the various options they might then pursue for the development of their inventions for public use. The Administrator should not wait passively for invention disclosures to cross his desk, but

should seek out and actively assist potential inventors. At the same time, however, he should not be so "pushy" as to antagonize them.

The position of Invention Administrator is not a good one for someone on the verge of retirement, whom the university simply wants to "take care of". Even an experienced administrator will find this a job with a long learning cycle, as he must become involved in the entire evaluation, patenting and licensing process. He must develop maturity and judgment as well as an equanimity which would enable him to handle crisis situations expeditiously and effectively. This can take five or more years and could well be a "second career" position.

Since faculty inventors are usually the younger faculty members, Invention Administrators who relate well to their juniors seem to have an easier time establishing the necessary close rapport. Mental flexibility, a high degree of curiosity, enthusiasm and a confident manner are highly desirable qualities for the Administrator to have.

Hiring of a retired business executive or administrator to fill the position, while attractive, should be approached with great caution in order to avoid the possible introduction of inflexible positions and stereotyped ideas often possessed by such individuals.

C. The Program

1. Inventor Identification

The key to the success of any Invention Stimulation Program resides in the ability of the Invention Administrator to locate and arouse the interest of that small percentage of the faculty that may produce patentable inventions. In general, the faculty-inventors will be those individuals who are engaged in scientific research, engineering or medicine, but not those doing theoretical research, or, on the other hand, merely making and recording observations. Research leading to inventive concepts is that which leads to something "new, unobvious and useful", solves a problem, satisfies a need, provides a better way of doing something, or is an improvement on an existing development.

It is not easy to find "invention-prone" individuals. Indeed they have difficulty recognizing themselves as inventors. They will rarely come by and introduce themselves. Instead, they will be plugging away at their principal jobs: research and teaching. Fortunately, however, they reveal their presence in one way --through their publications -- and the "publish or perish" syndrome strongly encourages publication. The academic information process generates a vast amount of literature, and the best advice is that this source be tapped and vigorously used.

Each institution, as well as each school and department within the institution, is operated differently. In general, the following kinds of publications can be extremely valuable in helping to identify potential inventors. So, an Invention Administrator should get on the distribution list for:

* Annual reports and catalogs of the institution and its various individual divisions or schools. (These provide an encyclopedic and up-to-date overview of on-campus research and funding. They should be among the first documents to be reviewed.)

* Department publications. (These list the past and present research interests of departmental faculty.)

* Computer printouts of research projects. (Watch particularly for holders of substantial research contracts in science, public health and engineering.)

* Faculty newsletters, notices of departmental seminars, and analogous periodic public relations efforts.

* Reprints of scientific and technical journal articles and other research publications of faculty members.

* Bibliographies. (Departmental bibliographies of journal articles and degree dissertations provide useful leads, although they don't reveal funding.)

* Project descriptions. (Some schools and divisions require faculty investigators to write brief summaries, in plain English, of each funded proposal. These can be extremely useful guides to inventive research.)

Skimming the above publications can lead to promising people. But the trick, of course, is to learn to penetrate the academic jargon with which inventive content is frequently disguised. For instance, where an industrial trade magazine might headline a report on a new transistor unequivocally: "New trans-

istor design gives 50% boost in switching speeds," the same invention might be described in the university world as follows:

* List of departmental grants: "Semiconductor research, $50,000."
* PhD Thesis: "Integral equation solution of transistor-base resistance in three dimensions."
* Seminar Announcement: "Recent progress in transistor modeling."
* Journal article: "Frequency switching characteristics of bipolar transistors with thin lightly-doped bases."

After a while, the knack will be attained of skimming these information sources, red pencil in hand, and circling the names and departments of authors who seem promising and worth visiting. A fixed time each day or week should be devoted to such activity and to visiting. As experience is developed a departmental newsletter can be reviewed in a few minutes, and a university-wide catalog or research survey, with several hundred abstracts, within one hour.

REMEMBER: The trick is not to read every technical abstract or article. It's a skimming operation, where you simply look for promising names, along with the department name, and opening questions for a personal visit.

A visit with a dean or department chairman will be a necessity at this stage. Explain that people whose research may develop inventive concepts need to be identified, by going through the department catalog or annual report. This

important exercise will distinguish those faculty members whose work seems promising from those whose work seems unlikely to lead to inventions; who has left or is planning to leave the university; who is involved in interdisciplinary research; and similar pertinent information. Most importantly, the chairman may well be persuaded to agree to serve as icebreaker in setting up personal meetings with promising people.

2. Written Communications

A good set of written documents is invaluable in communicating with the faculty about the Office of Invention Administration, the institution's patent policy, and the services offered by the Invention Administrator. Since faculty members will be bound by the terms of the institution's patent policy, this should probably be the first publication to be prepared.

Most academic institutions will have printed their patent policy as a separate booklet or as a section of a faculty "handbook" and will have distributed it to new faculty members when they sign their employment contracts. Some institutions even review the policy every three to five years in a faculty publication. Unfortunately, this relatively straightforward procedure appears to be largely ineffectual. It has been our observation that:

* Most faculty members don't know what is in their institution's policy.

* Many are unaware a policy even exists.

* Very few realize there is an administrator responsible for implementing that policy and to whom they can turn for assistance.

The Invention Administrator position may be a box on the organization chart, but that doesn't assure that his existence as a person is registered in faculty minds! The reasons for this lack of knowledge are quite obvious:

* New faculty members are unlikely to wade through pages of quasi-legal jargon at a moment in their careers when inventions and patents seem to bear little or no interest for them.

* There is a natural gulf between the administration and the faculty that is enhanced in the case of patents by administrators who often take a completely passive approach to the job, preferring to sit back and wait for inventors to send them disclosures.

* A widespread bias toward, and disinterest in, patenting makes faculty members less receptive to efforts to stimulate invention disclosures.

As a result, the Patent Administrator must publicize his or her presence. At a large institution, with several thousand faculty members, the most efficient way to do this appears to be through:

* Notices in the university newspaper, faculty bulletin or other campus publication (See Appendix D).

* A brief, one-page mailing to every faculty member.

If a simple mailing is used, it should serve to introduce the Administrator to the faculty and, in so doing, to remind it that the institution has a patent policy. The first message to get across is, essentially: "I'm here; I'm here to help faculty inventors, to administer the university's patent policy, and to help unravel any red tape you may encounter in adhering to the policy."

The second message is that the patent policy includes certain points of special interest to faculty members. These should be summarized briefly.

Finally, an explanation is needed for why the university wants to encourage patenting. Restate some of the reasons in Box I and, if there's still room, dispel some of the prominent "myths" about inventing (see Box II). See Pages 28 and 29.

IMPORTANT NOTE: Be sure to include heads of departments in all mailings. They need special personal letters because their cooperation is essential to the success of any program to stimulate disclosures. If the department chairman can be convinced of the wisdom of Invention Stimulation and its potential benefits to his department, his individual faculty members and the institution, he will be a valuable ally in stimulating disclosures.

After an appropriate period of time, usually two months, a second more comprehensive mailing should be sent out to a more limited cross section of the faculty. This second mailing should

be addressed to people who are working in science and technology and, presumably, are familiar with the general concept of inventing and patenting. It can address them directly as potential inventors. As a minimum, this communications "package" should include no more than a two-or-three-page letter summarizing clearly:

* The benefits of patenting (see Box I.)
* The myths of patenting (see Box II.)
* The fact that the institution has a patent policy.
* The Administrator's role in implementing policy and in helping faculty members to make invention disclosures and having them evaluated in accordance with it.
* An invitation to contact the Administrator for answers to any questions about patenting in general or simply to arrange a personal meeting to discuss specific research results.

BOX I

BENEFITS OF PATENTING

Expedites availability to the public of new products, new processes, or new uses for old products.

Helps prevent inventions from being buried, at one extreme, or improperly exploited to the detriment of the public, at the other.

Disseminates beneficent knowledge through detailed descriptions provided in issued patents.

Stimulates further research by others.

Provides financial return to university and to individual inventor.

BOX II

COMMON MISCONCEPTIONS ABOUT PATENTING

THE MYTH	THE REALITY
If you publish, you can't patent; if you wish to patent, you can't publish.	Absolutely untrue;by following a proper time sequence, you can and should do both.
Inventions made during work on a government grant or contract aren't worth patenting because anything you discover belongs to the Federal government.	Not necessarily so. Many agencies, including HEW, DOD, NSF, NASA, and in most cases, DOE, have arrangements providing for the university to acquire title, obtain and license patents, and retain royalty income within certain restrictions set by the government agency.
Patents are only granted for "hardware", not for a new process or a new use for an old compound.	Wrong, again. An invention is anything "new, unobvious and useful" that solves a problem, satisfies a need, provides a better way of doing something, or improves an existing product or process.
Publishing is the way to make certain an invention will be dedicated to the public good.	Not so. Many companies, especially the medium-sized and smaller ones, need temporary protection against fierce early competition to protect the often substantial investment necessary to bring an invention to the marketplace.

In addition, the package should include a brochure that summarizes and explains -- in plain English -- the institution's patent policy. Since many faculty members are unaware that the policy exists for their protection as well as the institution's, such a brochure should not only clarify an inventor's obligations under the policy, but it should also stress matters with which faculty inventors will be particularly concerned. These are:

* Their share of any income.
* Provisions for patent ownership.
* The extent to which the institution's share of royalty income can be earmarked for their academic discipline or department.
* Whether or not the institution has patent agreements with government agencies that give it and the inventor a right to share in any income from inventions made as part of federally-supported research.

Another brochure should also stress the importance of timely disclosure of inventions and describe the procedure for this, including:

* Kinds of records that must be kept.
* The various ways in which the disclosure can be made, including printed forms if these are used.
* Where to send the disclosure.

The "audience" will narrow down rapidly to fewer than half of the technical faculty. The likeliest inventors will be found in:

* Engineering (mainly chemical, mechanical, electrical and environmental)
* The Sciences (particularly chemistry, biochemistry and applied physics)
* Food technology
* Pharmacology
* Dentistry
* Medicine
* Veterinary medicine

3. Seminars

Purpose and Format of Lecture-Seminars

The Patent Administrator at one large university flatly states: "There is no substitute for face-to-face interaction with the faculty to identify inventions on a timely basis." This is good advice for an institution with only a few potential inventors, the simplest and most effective plan is to meet each and every one of them individually, relying on an initial broadside communication to be a satisfactory introduction.

However, at a medium to large institution it will be more practical to employ departmental seminars, aimed specifically at the faculty of promising (for inventions) departments or disciplines. Holding lecture-seminars is an efficient way to:

* Overcome misconceptions and lack of information that prevent faculty from recognizing when they have made inventions in the legal sense and from disclosing such inventions in a timely manner.

* Identify individuals who have either made an invention recently or who have a good chance of doing so in the near future. Such people are prime candidates for early meetings with you.

Essentially, the seminar should involve a short (15-20 minutes) lecture followed by a question period of 30 to 40 minutes. An outline of a sample lecture is provided in Appendix A. While the lecture should be adapted to the needs of each particular faculty, at least the following points should be covered:

* Definition of an invention, an invention disclosure, and a patent. How these relate to the overall innovation process by which inventive concepts become products and processes that serve the public.

* How to recognize an invention when it has been made.

* The importance of keeping good records.

* How to disclose an invention.

* The difference between publishing, disclosing, and patenting, and the danger inherent in publishing before filing a patent application.

* The benefits of patenting.

* The various invention "myths."

* The criteria by which a disclosure will be evaluated.

* A closing appeal to attendees to review any of their publications that are less than eight months old for possible inventions and to disclose immediately any they find.

INVENTION SEMINAR OUTLINE

Introduction

Testing an hypothesis: Patent awareness will lead to an earlier and more widespread identification of inventive concepts

Basic interest by all federal granting agencies to maximize return on investment in grants dollars

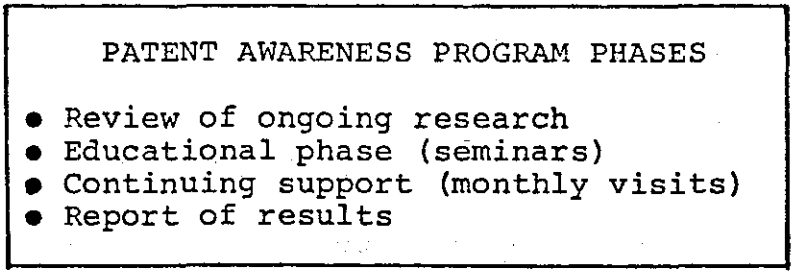
The basic assumptions:

- Inventions can arise from university research
- These inventions can be put to practical use

Techniques to be tested:

- Assist faculty to recognize and disclose inventions
- Acquaint university community with role of patents in innovation

(Slide 1)



An Overview

Roles of faculty researcher: teach, acquire and disseminate knowledge

Connections between these roles and invention, patents and innovation

Definitions

- Invention — Something which never existed before
- Patent — A grant by a government to an inventor giving him the right to exclude others from making, using or selling his invention for a definite time period. In the U.S. the grant is given in exchange for a full disclosure of a new, useful and nonobvious invention
- Innovation — The introduction and use of an invention in the economy

Academic research rarely planned to produce inventions, but planned or not they will continue to occur

- There are many examples of academic inventions. Common characteristics: made at a university, covered by patents, licensed to industry, produced financial return

Key events which start innovation process

- Recognition of invention
- Disclosure to others

Recognition

- You, the researcher, are closest and have the first opportunity
- Recognition often depends upon awareness

Making a disclosure

- Provide a written description to your cognizant university office
- Disclosure does not mean telling the public

(Slide 2)

ACADEMIC INVENTION MAXIMS

- Inventions can occur
- Recognition is crucial
- Disclosure is a must

Recognizing An Invention

Recognition is a critical step in innovation process

Characteristics of inventions: newness, usefulness

- Either newness or usefulness should alert the researcher
- Not necessary that these characteristics coexist initially

(Slide 3)

AN INVENTION IS

Something new and useful which may be...
- A solution to a problem
- Something that satisfies a need
- A better way of doing something
- An improvement to existing development

(Slide 4)

THE PROCESS OF INVENTION INCLUDES

- Mental act: the "conception" (an end result and the means to obtain it)
- Physical act: the "reduction to practice" (proving by demonstration that result is obtained)

Good records are vital

- As an aid to recognizing inventions
- As the only acceptable means to establish conception and reduction to practice

Disclosing the Invention

A disclosure is a written description of an invention

- Two functions: explain invention, state its use

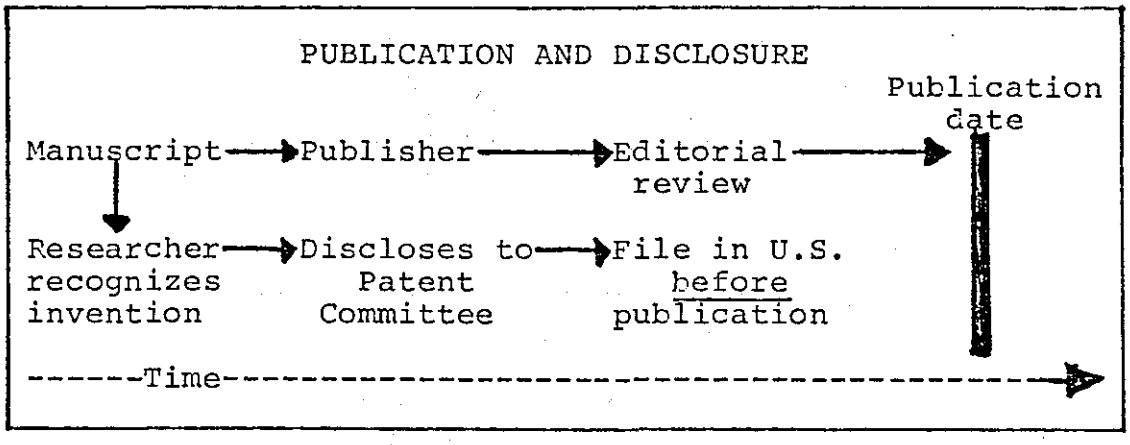
No formal requirements for disclosure

- Manuscript or article
- Written description if no manuscript
- Questionnaire

The time to disclose

- Immediately after inventive act complete
- Latest optimum: when submitting manuscript to publisher

(Slide 5)



(Slide 6)

IN PATENT LAW, A "PUBLICATION" IS

Printed and available to public, and includes:

- Article in lay or scientific press
- Book or conference proceedings
- Thesis when catalogued in library
- Abstract of talk at meeting

Authored by the inventor or others

Not regarded as publications are:

- Any private communication
- Report to sponsor
- Talk before private group

Publishing without further action means that:

- Invention becomes part of public domain
- There is no inhibition to development if costs are low
- Absence of a preferred market position may deter firm from risking capital when development costs are high

Applying for patent, then publishing, means that:

- An incentive to develop, usually required by academic inventions, can be provided to industrial firms
- The incentive to develop is a preferred marketing position assured through a time-limited exclusive license

(Slide 7)

BENEFITS OF PATENTING

- Provides incentives to industry to develop
- Gives public new products, processes not otherwise available
- May provide financial return
- Retention of control by patentee can prevent abuses
- Disseminates knowledge
- Stimulates further research by others

Misconception: "If you publish you can't patent; if you want to patent you can't publish" - not true if proper time sequence is followed

Publication before filing a patent application causes immediate forfeiture of foreign rights.

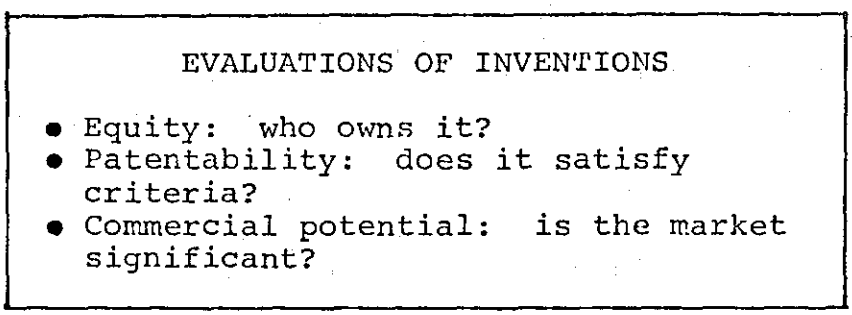
- Six months after publication you lose the right to patent in West Germany and Japan
- One year after publication you lose the right to a patent in the United States

If you file first in the United States, you preserve the foreign patent rights for one year regardless of a later publication

To summarize, we have considered the recognition and disclosure of inventions, patenting and publishing, and the options open to the academic inventor

Evaluating the Invention

(Slide 8)

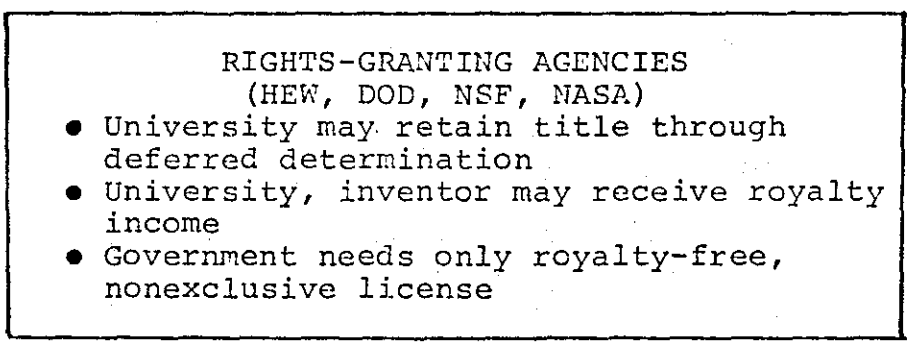


Equity

- Depends upon source of funds (salary, equipment, supplies)
- Patent policy of the university

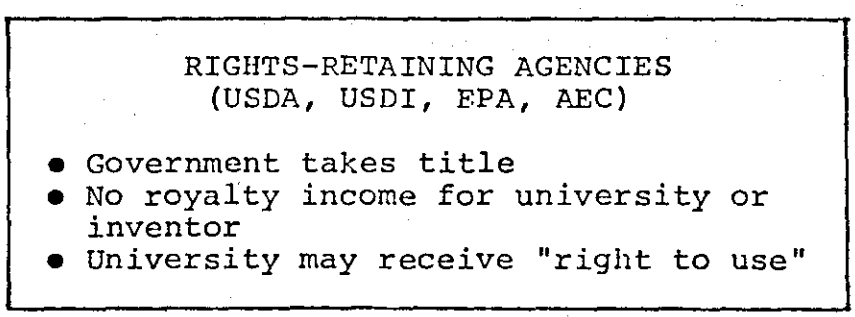
Misconception: "Inventions made under government grants are not worthwhile patenting"

(Slide 9)



Some agencies, HEW, NSF, make institutional patent agreements (IPA). This University does/does not have IPA with HEW/NSF.

(Slide 10)



Patentability depends on whether invention meets statutory requirements

- Does it satisfy criteria?
- Is it novel, useful, nonobvious?

Commercial potential depends on:

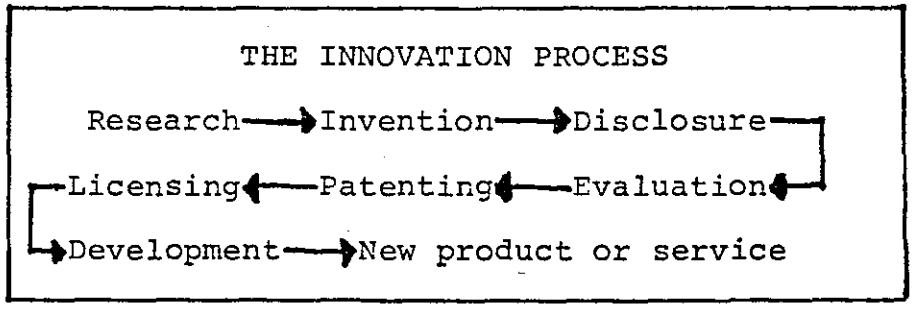
- Whether patent rights can be licensed
- Market size expectation
- How market size affects decision

Acceptance decision by patent committee means:

- Assignment of invention to university or its designee
- Further responsibility for patenting and licensing belongs to university or its designee

Bringing It All Together

(Slide 11)



The innovation process consists of:

- Series of connected steps
- Any break in chain interrupts process

Faculty researcher is involved in research, invention and disclosure

Recognizing an invention is the crucial step

- Is there an easily identifiable signal (manuscript)?

Review any publication less than one year old

- Does it describe an invention?
- Should it be disclosed to university patent committee?

Support will be provided in a continuing effort to identify inventive concepts

- Team members conducting this experiment will be available by mail or phone and on campus on a regularly scheduled basis.

- Call Mrs. Mary Gordon (Mr. Raymond J. Woodrow's secretary) at 2-3097 for an appointment with a team member.

IMPORTANT - PLEASE TAKE A MOMENT AND FILL OUT THE ATTACHED QUESTIONNAIRE

INVENTION SEMINAR QUESTIONNAIRE

Please answer the brief questions below (use reverse side if needed). Questionnaires will be collected at the close of the seminar program.

Name_____ Title_____

Department_____ Office location_____

University telephone number_____

What are your current major research interests?

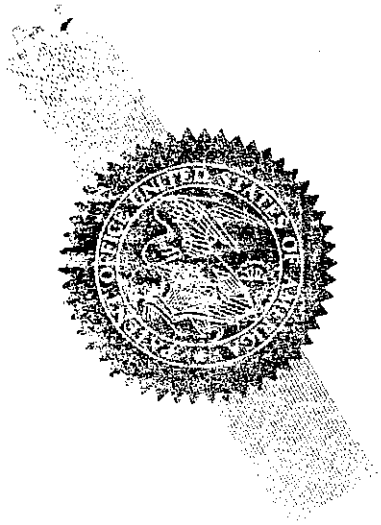
What seminar topics do you wish to discuss in detail with us during our visits?

What current research and/or possible inventions would you like to discuss with us during our visits?

Please give us the names of any of your colleagues who you believe might be interested in this program.

What comments and suggestions do you have for conducting or improving these seminars and the program of which they form a part?

Thank you for your assistance.



UNIVERSITY OF MARYLAND
College Park

INVENTION SEMINAR WEEK
March 17-21

Seminars for faculty, staff members, graduate students and other interested persons will be held as part of a program sponsored by the National Science Foundation to develop at educational institutions an enhanced understanding of the patent system as a technology transfer mechanism. Such an awareness is expected to lead to an earlier and more widespread identification of inventive concepts resulting from University research. The means available to bring these concepts into public use will be explored. You are encouraged to attend your departmental seminar, or to participate in another if more convenient.

■ Monday, March 17

For:	Time:	Place:
Food Science	10:00 A.M.	Animal Sciences Center, Room 3105
Agronomy, Botany	1:15 P.M.	H. J. Patterson, Room 1109
Dairy Science, Veterinary Science, Poultry Science, Animal Science	2:00 P.M.	South Administration, Room 2118

■ Tuesday, March 18

Agricultural Engineering, Civil Engineering	9:00 A.M.	Shriver Laboratory, Room 1112
Microbiology, Entomology	2:00 P.M.	South Administration, Room 2118

■ Wednesday, March 19

Zoology	10:00 A.M.	South Administration, Room 2118
Chemical Engineering	1:30 P.M.	Chemical Engineering, Room 2117
Chemistry	2:00 P.M.	Chemistry Building, Room 0106

■ Thursday, March 20

General Open Seminar	10:00 A.M.	South Administration, Room 2118
Department of Physics and Astronomy	4:00 P.M.	Physics and Astronomy, Room Z1410

■ Friday, March 21

Textiles and Consumer Economics, Aeronautical Engineering	11:00 A.M.	South Administration, Room 2118
Electrical Engineering	2:00 P.M.	Engineering Classrooms, Room J2152

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