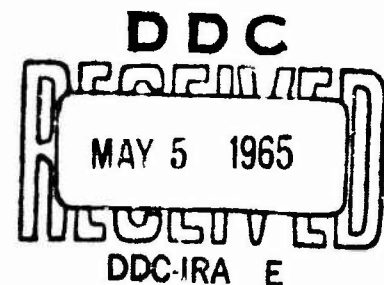AD 614894

AS LONG AS YOU'RE UP GET ME A GRANT... THE PREPARATION OF UNSOLICITED RESEARCH PROPOSALS

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OFFICE OF AEROSPACE RESEARCH
Air Force Office of Scientific Research
United States Air Force

1 March 1965

AS LONG AS YOU'RE UP GET ME A GRANT--
THE PREPARATION OF UNSOLICITED RESEARCH PROPOSALS

(Talk given by Dr. Harold Wooster, Director of Information Sciences,
Air Force Office of Scientific Research, Office of Aerospace Research,
United States Air Force, Washington, D. C., 20333 before the Delaware
Valley Chapter, Society of Technical Writers & Publishers, Drexel
Institute, Philadelphia, 23 February, 1965.)

DIRECTORATE OF INFORMATION SCIENCES

Air Force Office of Scientific Research
Office of Aerospace Research
United States Air Force
Washington, D.C. 20333

AS LONG AS YOUR'RE UP GET ME A GRANT—
THE PREPARATION OF UNSOLICITED RESEARCH PROPOSALS

This talk is concerned with the preparation of an art form peculiar to the R&D or Gilded Age--the research proposal. Proposal writing differs from most other forms of non-fiction in that:

(a) The writer is assured that at least one person will read what he has written.

(b) There is an operational test of effectiveness. The proposal is accepted or rejected. If the proposal is accepted, the technical writer is entitled to as much credit as he can steal. If it is rejected the blame, at least to an audience of technical writers, can be shared equally between the scientists who gave them lousy material to work with, and the inverse Micawberism of those bureaucrats in Washington who keep waiting for something to turn down.

It is fair to the audience for a speaker to tell when he knows what he is talking about and when he is talking through his hat. I know, reasonably well, the problems involved in preparing and submitting an unsolicited basic research proposal to the Air Force Office of Scientific Research. Specific details may differ, but I think that my general statements will apply equally well to the Office of Naval Research and the National Science Foundation. To a lesser extent they should also apply to unsolicited proposals submitted to the Army Research Office, the National Aeronautics and Space Administration and the National Institutes of Health.

The operational work in the preceding paragraph is "solicited"; its antonym is "unsolicited". "Unsolicited" is a term of the art, like "ethical" in relation to pharmaceutical houses which I assume lack the antonym. An "ethical" house, regardless of its scientific or businss ethics, is one that nominally advertises only to the medical profession. An "unsolicited" proposal is, according to the Armed Services Procurement Regulations:

"A research and development proposal which is made to the government without prior formal or informal solicitation from a purchasing activity."

An unsolicited proposal, at least in our Command, is treated as proprietary. It is evaluated, accepted or rejected on its own merits. To be sure, it is in competition for our budget with all other proposals that we receive. We will haggle on the price, but we will not take your idea and put it out for competitive bidding.

A solicited proposal, on the other hand, is one prepared in response to direct solicitation. In an unsolicited proposal you propose both the problem and its solution. In a solicited proposal we propose the problem and you propose the solution.

Your proposal will then be evaluated, usually by an evaluation team, in direct comparison with your competitors.

As you might expect in this non-Aristotelian world, there is a third category which might be called the "quasi-solicited" proposal. Procurement shops live in a binary world of contracts or grants, sole source or competitive bidding, but there are all sorts of grey areas before the proposal reaches procurement.

For example, there is the procurement synopsis program. We are required by law to place our programs--not only our contract and grant awards but also our research interests (not, in our case, needs)- in the Commerce Daily, which is published in Chicago by the Department of Commerce. You have an opportunity there to review what we are doing and, if you see an announcement of a proposed procurement and if you think you can hack it, you are invited to contact the Air Force laboratory which is conducting the program and ask to be included in the competitive bid process. If you demonstrate by your response an interest and technical capability in the Air Force Program, you will have an opportunity to be placed on bidders' lists.

It is not, as we and our Judges Advocate understand the term, solicitation for our staff members to give speeches telling of r research interests, to list as we do our entire basic research program in Air Force Research Resumes, or even in a phrase well-known before der Übergang das Abendland (the decline of the West) to say, "Why don't you come up and see me some time?". We do, however, take a very dim view of cover letters starting off "As you requested, I am sending you an unsolicited proposal." !

How do you write an unsolicited proposal? You don't, any more than you would try to write an article and then peddle it in turn to the Kenyon Review, the Saturday Evening Post or Cavalier. There is no such thing as a universal, general-purpose proposal.

Ours is a pluralistic society; sources of research funds are equally pluralistic. I like it that way. If our agency is too stupid, or short-sighted, or prejudiced or, as is usually the case, broke to fund your proposal, you are welcome to go across the street to NASA, down Constitution Avenue to the Office of Naval Research or the National Science Foundation, or out Wisconsin Avenue to the National Institutes of Health.

It would be possible, although I shudder at the thought, to design a Federal Science Machine. It would be linked to the Computers at Internal Revenue and Census and which ever TV network's computer won the last election sweepstakes. The Federal Clearinghouse for Science and Technology could take care of publications; Science Information Exchange of current and past research efforts.

Referees, if they were still needed during the transition period, would be spared the painful necessity of trekking to Washington, or even more painful necessity of writing letters. Government furnished consoles would give them on-line displays of the stickier problems, a choice of four buttons to push, "Yea, Nay, Maybe, and I want Out", and transfer credits to their bank's computer for correct answers.

When that halcyon day comes, you will only have to write one copy of your proposal on magnetic tape, and feed it in to the central computer via Dataphone. The Science Machine will count the principal investigator's publications, match the technical content against the state-of-the-art reviews in its memory banks, check the Federal R&D funds your area has already received this year (and how it voted in the last election), throw in a table of pseudorandom numbers and award you a contract to build a Stanley Steamer (we mustn't push the state-of-the-art too far).

For at least the next 19 years, however, you will have to live with the fact that Federal research funds are dispensed through a diversity of agencies, and an even greater diversity of individuals, each with their own peculiar needs, and requirements, and ways of operating.

Let's assume, though, that your eating money won't hold out till 1984. Your company has a brilliant, impractical, unworldly young scientist, Theophrastus Bombastus von Hoenheim, whom we will call Dr. Paracelsus for short. Doc has all his union cards--PhD from a respectable school, several sound articles in reasonably respectable journals, a hi-fi set, a Volkswagen and a crew cut. He has a couple of ideas for nice bite-sized research projects, neither trivial nor insoluble. The only thing he doesn't have is Federal Support.

You, Dogsbody, have the job of getting him research money. Since you are a good Dogsbody, I am defining your jobs by exclusion as all those that Paracelsus can't do for himself.

Your campaign falls into four stages:

Reconnaissance and Target Identification

Contact

Proposal Writing

Patient Waiting

Reconnaissance and Target Identification

This job is essentially a problem in technical intelligence; much of it can be done without leaving your desk. The basic reference is the "U. S. Government Organization Manual" which you buy from the Superintendent of Documents, Government Printing Office (hereafter abbreviated, SupDoc)

for $1.75. This gives you the set of all Federal organizations; your job is to find the sub-set which is interested in supporting Dr. Paracelsus' research and then within those organizations find the lowest level of administrator who can say "Yes" with a reasonable probability of making it stick.

There are two ways of finding out an agency's research interests. One is to listen to what it says about what it would like to support; the other is to find out what it actually does support. Dr. P's proposed research is, of course and by definition, unique, but it isn't all that unique, and the odds are a little better that it will find a home among similar efforts in an on-going program than that it will break virgin territory and open up a new research area for an agency.

Finding out what we say we'd like to support is not difficult. Five dollars worth of stamps will get you at least 100 agency brochures. Agencies love to put them out and get rid of them so that they can print new ones to take care of their latest reorganizations.

Finding out what research we are actually supporting is a little more difficult. One outfit in New York spends something like $1 million a year, and makes a tidy profit on it, in running an intelligence operation on DOD contract awards. They'd be delighted to sell you their services.

The Public Health Service list of grants and awards is available from Sup Doc for $1.50. This year the National Science Foundation has published their annual report in two parts. The second part is a grant listing; you can buy it from Sup Doc for $1.00.

Neither of these publications, I regret with tongue in cheek to say, has either a subject index or a list of abstracts of their research efforts. The Air Force is the only one of the three military services and, with the possible exception of NASA whom we taught how to do it, the only Federal Agency to publish a properly subject indexed set of abstracts describing all their basic research efforts. This is called Air Force Research Resumes and can be purchased from the Federal Clearinghouse for Scientific and Technical Information-- the former Office of Technical Services, OTS--for, I believe, $5.00.

Dr. Paracelsus can be a big help here. For our own legitimate bibliographic reasons we do our damndest to encourage journals to print credit lines as footnotes to their articles--"The research reported herein was supported in whole or in part by the Directorate of Information Sciences of the Air Force Office of Scientific Research." I assume that these credit lines can also be used for other, less legitimate purposes. Dr. P should certainly be encouraged to root through the footnotes in his piles of reprints and come up with clues for you.

Collect organization charts. The largest single bargain you can find is the Department of Defense phone book. We got so tired of having these swiped out of our offices that we finally made them available through Sup Doc for $1.25. Trade magazines love to print organization charts--you'll find them in everything from Aviation Week to Electronic News, and usually more complete than the official ones.

There is a temptation to stop at this stage of the game--say with your discovery that Dr. P's research might be of interest to the National Institutes of Health, the Atomic Energy Commission and the Space Agency--write a simple jim-dandy general purpose proposal, load it into a blunderbus and fire it off in the general direction of a dozen different agencies. Don't. Keep on working until you have the specific names of individuals in these agencies at, as I said before, the lowest level in the organization that can say "Yes" and make it stick.

Contact

The next step is to come out of the overcast and make contact with us. There are two possible strategies, depending upon whether you or Dr. P has more spare time-- but someone has to find out whether we're interested.

Civil servants are easy to talk to, but they're hard to catch in the office. Keep trying. Phone ahead to find out whether we're interested. If not, we can usually suggest someone, either in our own organization or elsewhere who might be. This is not always a run-around, but even if it should be, it's better to wear out Ma Bell's electrons than your shoeleather.

But suppose someone does nibble at your bait. I had over 100 formal office visitors last year, so it's not impossible. From here on out, you can handle things by mail. If Paracelsus were teaching in a small college in Oregon it would be ridiculous to suggest that he come to Washington to discuss a $5,000 grant. Eventually though we are going to want to meet the scientist who's going to do the work--if not in our offices, in his lab or at a scientific meeting.

Some companies seem to like to use their Washington representatives or traveling vice-presidents to do the preliminary screening; some send teams of three--the scientist, the salesman, and someone who sits in the corner and says nothing but silently weeps when we mention that the purpose of an AFOSR contract is not to make money; a few are actually brave enough to send the scientist down without someone to hold his hand. Suit yourself, but if you're going to have to write the proposal you might as well come along.

Make a definite appointment. Phone the day before to confirm it. Life in Washington is hectic, and even with the best of intentions the executive flu (if you don't have it, you're not close to the President), a Pentagon panic or even a purely local head-shed flap or

brush fire can leap upon us.

Come prepared. Not with your key to the Playboy Club--the nearest one is in Baltimore, and that's too far to go for lunch-- nor with credit cards in anticipation of a big night on the town. Most of us belong to car pools and have wives, homes and children in the suburbs we see all too rarely as it is.

Don't prepare an elaborate formal briefing. We're reasonably good at that racket, and we're more likely to try to pick up a few new techniques than pay attention to what you're saying. I deliberately don't have an easel in my office; flip charts look silly spread on the floor; 35 mm slides look even sillier projected on my wall. Any charts needed should be briefcase size--you're visiting a private office, not a theater.

Do come prepared for about an hour's conversation. If Dr. P is like most of my scientist visitors, he needs to be turned off, not on. But remind him to bring along spare copies of any relevant publications, and some sort of summary he can leave with us. And please don't let him try to sit in my lap!

One common mistake visitors make is to assume that I'm smarter than I am. A large desk only conveys the appearance of omniscience-- I haven't yet been able to build Memex into mine. Dr. P is all too likely to come in and start talking immediately about the latest advances in a field of which I have only general knowledge. I have a standard defense--"What do you mean by Bayesian statistics?"--but I'd rather not be made to use it. This may be a chance for you to justify your trip by playing Dr. Watson when my eyes start to glaze.

On the other hand, you can't absolutely count upon my being stupid. Make sure that Dr. P does his homework. He is presumably in my office because he knows more about his field than I do-- and if I find out that he doesn't know about what has already been done or about similar work that is going on elsewhere I'm likely to take a dim view of his competence.

Let's assume that you have found the right office. The conver- sation is going famously, but you've been there for almost an hour. Get out while you're ahead, but remember to ask two questions before you go:

Should (or may) I send in a proposal?

When should I send it in?

The second question is actually the more delicate of the two, since it involves the oestrus cycle of the agency. Some come into heat twice a year; others are more or less in heat all year round. The fundamental biological rhythm is that of the Federal fiscal year, which starts officially on the first of July. Congress does not usually get around to appropriating the funds until some time in

August, and we can't spend the money until we get it.

Most agencies are under some pressure to have their funds committed well before the start of the next Fiscal Year. We, for instance, are usually told to have all of our funds initiated by the end of January each year. We also do not like to keep proposals around for more than six months (our General doesn't like it either, and that's important).

In practice then, although proposals can be sent in at any time of the year, for us at least those sent in from February through August tend to lie fallow. We will be busily writing purchase requests from September through January. I suspect, although I haven't bothered to keep the statistics, that the best time to send in proposals to us is from May or June through November. I suspect also that each agency has its own peculiar rhythm. As far as I can tell from the notices in Science the National Science Foundation has two deadlines a year for submitting proposals, but find out!

Agencies differ in the way they answer the question, "Shall I send in a proposal?" The proper, safe, dull, bureaucratic procedure is to say, "Oh yes, by all means. I have to see it in writing before I can possibly make a decision." This is fine as far as it goes, but it can go too far. For gross improbables I prefer to use the sword in my office rather than the Judas kiss in absentia. It's work for us to log in, acknowledge, evaluate and reject proposals; it's even more work for you folks to write them. I prefer not to let people leave my office without giving them some idea of the probability of our being able to fund their proposal, although I am always careful to point out that if they don't send in a proposal at all the probability is 0.

Let's say that I have suggested--not asked or solicited, mind you, but suggested--that you might want to send in a proposal.

Writing the proposal

There are two sorts of proposal--formal and informal. The formal proposal is a legal document, bearing the signature of a responsible officer of the would-be contractor. The informal proposal has no legal status. On the other hand, it can bypass your administrative chain which, at the very least, saves time. An informal proposal can be converted into a formal proposal by the addition of a firmer cost estimate and a legal signature. In practive we prefer, and most of the people we do business with seem to prefer, to use informal proposals as a first step. I gather that some agencies can deal only with formal proposals.

There is also the question, which will have to be raised sooner or later, whether you are interested in a contract or a grant.

Much of this decision is out of your hands. Grants can only be made
to not-for-profit institutions, and not all of these. Grants have
one major disadvantage--there is a statutory limitation on the amount
of overhead that can be paid; contracts are eligible for full audited
overhead. We, and many of our clients, feel that the advantages of
the grant in easier administration, transferring title to equipment
and the like overweigh the disadvantages of being limited to, say 20
per cent overhead. Not-for-profits may get their choice of a
contract or a grant; nominally profit-making organizations are only
eligible for contracts.

Before you leave the office find out what the local ground
rules for proposals are. Find out also if there are any peculiar
pieces of paper to be used. We're perfectly happy with plain white
bond, although I will admit that paper $8\frac{1}{2}$ inches wide gives me a
terrible feeling of margin envy, but apparently some other agencies
use Multilith mats or fan folds with their own peculiar forms.
Make them give you some. It serves them right.

Our own suggestions for preparing research proposals are set
forth below as an example. Other agencies may have different
suggestions. Find out what they are. It would be a shame to blow
it when you're this close to home.

I will skim lightly over the more obvious points. You should
include:

The legal name and address of the organization requesting
support, as well as the name of the individual submitting the
proposal.

Desired starting period of the research, remembering that it
takes time to translate a proposal into a contract--allow at least
three months--and the time period for which support is requested.
This should probably not be for less than a year. We can
occasionally fund for multiple years, but it's best to break the
effort down into year-sized chunks.

We assume that the principal investigator will be responsible
for direct supervision of the work, and in most instances will
participate in the conduct of the research regardless of whether or
not he is to receive any compensation from the contract funds. We
need his curriculum vita with a list of his principal publications
(I, at least, deduct one point for every proposal listed as a
publication--and don't think that people don't do it); we will need
similar information for other senior professional people who will
be associated with the project.

Cost estimates are important, but I could derive more sheer
lyric beauty from reading a page of the Philadelphia telephone
directory to you. Besides, this is one place where we don't want
creative writing. I have included details of cost estimates for

contracts and grants as appendices to this paper.

Please feel free to submit the same proposal to several different agencies, but tell us if you do. It makes our job simpler. There is coordination among the different agencies, but it's not foolproof. There have been times in the past when we did not discover that another agency was planning to fund the same proposal until it was almost too late to straighten things out. It's a lot better for all concerned for you to tell us, rather than have us find it out. This is one of the things that makes civil servants uncivil.

If the proposal is to be treated as a formal proposal, one copy must be signed by the principal investigator and by an official authorized to sign for the organization. All copies of the proposal should indicate the persons, with their titles, who have signed the proposal.

Send in at least six copies of your proposal. Your office copying machines don't cost any more than ours, and probably work better.

So far, much of what I have discussed is <u>biblia</u> <u>abiblia</u>, literature devoid of humanistic interest. There are other things that the proposal must have:

A <u>title</u>

<u>An abstract</u>, in 200 words or less, set forth on a separate page.

A <u>detailed description</u> of the work to be undertaken, the <u>experimental and theoretical</u> methods to be used, the work objectives and their relation to the state of knowledge in the field and to comparable work in progress elsewhere.

A bibli⸱ ⸱aphy of pertinent literature citations should be included. Since May of 1957 there has been an oft-repeated, and amplified, bit of nonsense to the effect that if a proposed piece of research costs less than $100,000 it is cheaper to do the research than the literature search. We don't, needless to say, agree with this. A scientist stands on the shoulders of other scientists as, in part, revealed by the published literature--and his ability to search the literature, or have it done for him for somewhat less than $100,000, is part of his professional competence. We don't mind, although we usually don't support, people who feel that they must invent the wheel; we have no immediate need for stone-boats, travois or sled runners.

Sometimes I think that the title of the proposed research is the most important part. It will be the first, and may be the only

contact others have with the research. It behooves us to pick titles which are bland to the Bad Guys and informative to the Good Guys.

A Bad Guy, in this context, is one who reads a list of project titles, spots one on, say, "The Mating Habits of the South African Flea", and proceeds to sound off on the waste of the taxpayers' money involved without bothering to find out what it's all about. Bad Guys, by this definition, occur in all walks of life, from newspaper columns to, I am told, the halls of Congress; lists of project titles circulate almost as freely. As I am also told, Virtue usually Triumphs, but it's easier on all concerned not to give the Bad Guys a handle.

Things to avoid, if at all possible, are:

Words or phrases with possible sexual or scatological connotations--single, double, and triple entendres.

Familiar names of mammals, birds, fish and even insects.

Words with a vulgar meaning at variance with the scientific meaning.

A good title will contain the most important specific keywords needed to index a project, arranged into a phrase that has more meaning than a random assortment of these selfsame words. Two things are important, then: the selection of the right words, and the ordering and connection of these into a meaningful phrase.

The description of the proposed research is, to the scientists who will evaluate the proposal, the single most important part. Dr. Paracelsus must write at least the first draft of this himself-- if he isn't interested enough to write it we don't want him for a principal investigator. There are things you can do to help him, after he's got it down on paper.

Make sure that Paracelsus has answered, if at all possible, the following questions:

What is he going to do?

Why does he want to do it? Professor Popper of the University of London suggests that every scientific investigation is undertaken to yield an answer to a question. This question should be statable before the research starts.

How is he going to do it? Is his approach theoretical, descriptive, analytical, experimental?

10

What new or old techniques or apparatus will be used or improved?

Will, deo volente, the investigations hopefully yield new techniques, new apparatus, new theories or hypotheses, new interpretations, new evaluations, new understanding?

Neither you nor he should work too hard to:

Justify the support of basic research by the Air Force.

Write a high school textbook (undergraduate, maybe, but not high school) on the state-of-the-art in this research area.

Provide detailed specific Air Force applications of the possible results of the proposed research.

Bias the Nobel Prize Awards Committee.

Win the Westinghouse Award for Science writing.

If you can:

Be precise. Avoid vague and inexact usage. Avoid idle words. Make every work pull its own weight.

Spell things out. Avoid acronyms and peculiar abbreviations. Say extreme low frequency, rather than ELF.

Be clear. Consider the beauty and efficiency of the simple declarative sentence and its siblings as a medium for communication.

You have two tools for your job; words and the arrangement of these words into sentences. Choose your vocabulary carefully before you begin to write. This isn't easy. A powerful English vocabulary comes only from much reading --as little of it as possible in manuals on technical writing--writing, and dictionary using. The most effective stimulants for Bad Guys and confusants for Good Guys are everyday dictionary words used with specialist meanings without warning. Use a dictionary. Not as an authority--Dr. Paracelsus has words in his vocabulary too new to be found in any dictionary--but to warn him what the word means to most readers.

Particularily dangerous are everyday words that have been compressed into specialist meanings, and then decompressed again as the specialty widens. Thus the word ends by having a vague specialist meaning, or meanings, quite different from its vague everyday meaning, as well as having specific specialist meanings at variance with each other and with any specific everyday meaning. Exampla horribilis-- INFORMATION ! ! !

Good writing depends not only upon syntax and grammar, but

also upon vocabulary. In English, particularily, proper choice of words can dominate and sometimes correct grammar and syntax. The reader benefits if vocabulary, grammar and syntax all pull the same way. If they pull in different directions, see to it that the vocabulary pulls in the right one. Neither misleading nor diffuse words can do this, for the latter either run in circles or don't pull at all. The sentence becomes an algebraic expression with unknowns to be supplied out of the reader's technical and social experience.

When choosing words, near enough is not good enough.

The proposal is typed, proof-read, assembled, bound, signed, proof-read again. Six copies are mailed in. Your job is done. Eventually, if all goes well, after various subterranean heavings and mutterings, you will get a letter of technical approval, which is not a commitment of funds nor an authorization to start work, and, eventually, a contract or grant. Relax, get lots of sleep, eat a light, nourishing diet. Because someday you are going to have start worrying about technical reports and journal articles, and how to fill out DD Form 1473.

But that's a topic for another paper.

Acknowledgement

Anything of literary merit in the preceding section stems, as does much of documentation today, from the advice of Robert Arthur Fairthorne, Mentor of Arisia and sometimes, I fear, Boskone.

COST ESTIMATES FOR CONTRACTS

An estimate of the total cost of the project with a breakdown of estimated costs per year should be submitted. Parts 2 and 3 of Section XV of the Armed Services Procurement Regulation (ASPR) provide principles for determining allowable costs. A corporation's or individual's request for funds should indicate the amounts required by category of cost, such as those set forth below.

A. SALARY COSTS:

(1) List separately all persons who will work on the project and the total amount each will be paid.

(2) Specify the rate of compensation currently approved by the administrative Contracting Officer for each person working on the project. This may be expressed in terms of dollars per engineering hour and total engineering hours projected.

(3) Itemize employee benefit charges, and what overtime, if any, is absolutely necessary and expected, with complete justification therefor. Information furnished on salaries of individuals to be paid at a rate in excess of $15,000 per year should include the name, title of position, experience, responsibilities and salary for each year of the past three years. Similar data are required for individuals who have had within the past year, or expect during the current year, a salary increase of 10% or more, explaining the reason for such increase. Information that may affect salaries, such as plans for leave and remuneration while on leave, during the period of the proposed contract should be disclosed.

B. OVERHEAD, OR BURDEN, RATES:

These rates are based on the contractor's current operating experience unless negotiated provisional rates are in use. State whether or not a recent fixed or provisional overhead rate has been negotiated by a government agency, and, if so, when, and by which government agency. Indicate whether a sizable increase in rate is expected. If a predicted overhead increase can be substantiated, use the increased overhead figure in the cost estimate. Always state the overhead-rate base, e.g., "salaries and wages" or "total costs," and the period of your fiscal year.

C. GOVERNMENT PROPERTY:

(1) Policy: The contractor is expected to adhere to Department of Defense and Air Force policies with respect to materials, special tooling and facilities as set forth in ASPR and Air Force Procurement Instructions (AFPI), Section 13. Whenever the contractor regards a deviation from these policies as necessary he should furnish AFOSR with a full justification in order to permit a comprehensive evaluation of this deviation.

(2) Materials: Materials costs will be a direct charge unless otherwise stated. Set forth an item description, quantity or units, and costs per unit. Unit costs should be based on recent quotations from manufacturers or distributors normally marketing these items.

(3) Special Tooling: Identify the quipment to be either fabricated or modified by the contractor to meet the specific requirements of the research project. Show the costs of fabrication or purchase and modification, and the basis for the cost estimate. Do not include as special tooling those items of equipment which, if purchased by the contractor with contractor funds, would be capitalized for federal income tax purposes.

(4) Facilities: Give a complete description of the facilities to be acquired by the contractor and their cost. Costs should be based on recent quotations from manufacturers or distributors normally marketing these items. The purchase of non-U.S. manufactured equipment requires special prior authorization under the Buy American Act. Process time for such approval is approximately sixty days. In view of the general policy of the Department of Defense that contractors will furnish all facilities required for Government contracts (ASPR 13-102.3), proposals that state a requirement for facilities should set forth the contractor's position with respect to why these facilities should be furnished by the Government rather than by the contractor.

D. TRAVEL: Anticipate the amount of travel to be required and estimate the rate at which employees will be reimbursed for travel. Type of travel, including its relationship to the research, should be specified.

E. PUBLICATION COSTS: Estimate costs of preparing and reproducing the results of the research conducted under the contract, i.e., purchase of reprints, "page charges," necessary illustration costs, etc.

F. SUBCONTRACTS: Support this estimate by indicating the specific items or portion of the work to be subcontracted, the type of subcontract anticipated, name of subcontractor, if known, and a detailed cost summary.

G. CONSULTANTS: State the daily fee and travel expenses which are planned.

H. COMMUNICATIONS: Estimate costs of long distance telephone calls, telegrams, postage, etc., relating to the research project.

I. OTHER DIRECT COSTS: Itemize other anticipated direct costs, e.g., such items as rental for computers and other equipment, space rental away from the contractor, minor alterations, service charges, freight, import and customs costs . Unusual or expensive items should be

fully explained and justified.

J. FEE: State the amount of contract fee to be included.

K. Give yearly totals of all costs and contract total. (Cost-plus-fixed-fee)

CERTIFICATE OF CURRENT PRICING

Whenever appropriate, a certificate of current cost or pricing data will be required in accordance with paragraph3-807.3(a) of ASPR.

APPENDIX II

COST ESTIMATES FOR GRANTS

An estimate of the total cost of the project, including a breakdown of the estimated costs per year, should be submitted. Parts 2 and 3 of Section XV of the Armed Services Procurement Regulation (ASPR), and Bureau of the Budget Circular A-21, provide principles for determining allowable and unallowable costs. Grantee's request for funds should indicate the amounts required by categories of cost, such as those set forth below. Contributions from other sources to the proposed research should be listed in similar categories. In this estimate the prospective grantee is required to furnish the basis on which each element of cost was established.

SALARIES. This item should include a list of personnel; the percentage of time each will devote to the proposed research; present salary with rate of pay or stipend (i.e., for a 9-month, 10-month, or 12-month year), and a total amount of salaries per year to be paid from the grant to each.

To the extent that work on the research project is to be performed during the academic year, a proportionate amount of the academic-year salary may be included in the cost estimate. For research to be conducted under a grant to an educational institution, compensation at a rate comparable to the monthly salary (i.e., one-ninth, or one-tenth of the year's salary) during the academic year may be requested for work done during the summer months. In no case shall this amount exceed the salary scale established by the institution for summer academic work.

Research is deemed to be a part of regular university duties and within the academic term, research is not an extra function for which additional compensation, or compensation at a higher rate, is warranted. Consequently, grant funds should not be requested with which to augment the total salary, or rate of salary, during the period of time covered by the term of faculty appointment of faculty members of institutions of higher education.

When part, or all, of an individual's services are to be paid for out of grant funds, it is expected that he will be relieved of a comparable portion of his regular teaching or other obligations.

EQUIPMENT AND SUPPLIES

Standard Equipment. Itemize and give a complete description of the equipment to be acquired including model number, if known, and its

4

cost. Costs should be based on recent quotations from manufacturers or distributors.

Expendable Equipment and Supplies. Identify as specifically as possible the expendable equipment and supplies required. Provide basis of estimated costs.

Special Equipment. Describe separately: equipment to be fabricated by the grantee for specific research purposes, and its cost; standard equipment to be acquired and modified to meet specific requirements, providing acquisition and modification costs separately; and exisiting equipment to be modified to meet specific research requirements, providing modification costs.

TITLE TO EQUIPMENT

Title to equipment which is acquired with grant funds may be vested in the grantee institution when such action is agreeable to the institution and furthers the objectives of the Department of Defense. When such vesting of title is desired a specific request should be included in the proposal. It is expected that equipment not entailing prohibitive removal and reinstallation costs will be permitted to follow the principal investigator if he changes institutional affiliation and needs the equipment for continuation of the AFOSR-sponsored research.

TRAVEL

Indicate briefly the type, frequency, and extent of anticipated travel, and its applicability to the research.

PUBLICATION COSTS

Estimate the costs of preparing and reproducing the publication of results of the research conducted under the grant. These costs will include clerical preparation, page or illustration charges, and cost of the required quantity of reprints.

OTHER DIRECT COSTS

Itemize other anticipated direct costs not included above, such as consultants and computer time, stating anticipated time and rate of compensation.

INDIRECT COSTS

Suggest a rate for allowable indirect costs based on the contract cost principles as set forth in Part 2 or 3, as appropriate, of Section XV of the ASPR, taking into account previous contract experience where relevant. Institutions not having information on which to base

a suggested indirect cost rate may request determination of such a rate at the time the proposal is submitted.

Indirect costs will be subject to further discussion with the AFOSR representatives during grant negotiations, and will be limited by any statutory or regulatory restrictions in existence at the time the grant award is made.

COST SHARING

If only partial support for the research project is requested, with the balance of costs to be absorbed by the grantee institution, detail the nature and amount of the contribution to be made by the grantee institution.

TOTAL

Give yearly totals, and a <u>Grant</u> total, of all anticipated costs.

DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)	2a. REPORT SECURITY CLASSIFICATION
Directorate of Information Sciences, Air Force Office of Scientific Research, Office of Aerospace Research	Unclassified
	2b. GROUP

3. REPORT TITLE

As Long as You're Up Get Me a Grant: The Preparation of Unsolicited Research Proposals

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

5. AUTHOR(S) (Last name, first name, initial)

Wooster, Harold

6. REPORT DATE	7a. TOTAL NO OF PAGES	7b. NO OF REFS
March, 1965	18	4

8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)
b. PROJECT NO. 9769	AFOSR 65-0392
c.	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
d.	

10. AVAILABILITY/LIMITATION NOTICES

Qualified requesters may obtain copies of this report from DDC

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
Talk given before Delaware Valley Chapter, Society of Technical Writers, 23 February, 1965	Directorate of Information Sciences Air Force Office of Scientific Research Office of Aerospace Research

The preparation of unsolicited research proposals is an art form peculiar to the R & D or Gilded Age. There are four stages in the search for research support: reconnaissance and target identification; contact; proposal writing and submission; and, patient waiting. Target identification is a sort of technical intelligence. A list of source documents for determining the research interests of potential fund sources is given; the search should not end until the lowest level in an agency who can say "Yes" and make it stick is identified. Rules for bearding bureaucrats in their lairs during the contact , and ascertaining the oestrus cycle of the agency are followed, at long last, by suggestions for proposal preparation-- title, abstract, detailed description of the work to be undertaken, and a cost estimate. Three of these are described as exercises in creative writing; the appendix gives specific recommendations for the preparation of cost estimates for grants and contracts.

DD FORM 1473
JAN 64

14.		LINK A		LINK B		LINK C	
	KEY WORDS	ROLE	WT	ROLE	WT	ROLE	WT
Research and research equipment Technical writing Abstract preparation Research grants Research contracts Research costs Research administration Documentation Scientific Research Research proposals							

INSTRUCTIONS

1. ORIGINATING ACTIVITY: Enter the name and address of the contractor, subcontractor, grantee, Department of Defense activity or other organization (*corporate author*) issuing the report.

2a. REPORT SECURITY CLASSIFICATION: Enter the overall security classification of the report. Indicate whether "Restricted Data" is included. Marking is to be in accordance with appropriate security regulations.

2b. GROUP: Automatic downgrading is specified in DoD Directive 5200.10 and Armed Forces Industrial Manual. Enter the group number. Also, when applicable, show that optional markings have been used for Group 3 and Group 4 as authorized.

3. REPORT TITLE: Enter the complete report title in all capital letters. Titles in all cases should be unclassified. If a meaningful title cannot be selected without classification, show title classification in all capitals in parenthesis immediately following the title.

4. DESCRIPTIVE NOTES: If appropriate, enter the type of report, e.g., interim, progress, summary, annual, or final. Give the inclusive dates when a specific reporting period is covered.

5. AUTHOR(S): Enter the name(s) of author(s) as shown on or in the report. Enter last name, first name, middle initial. If military, show rank and branch of service. The name of the principal author is an absolute minimum requirement.

6. REPORT DATE: Enter the date of the report as day, month, year; or month, year. If more than one date appears on the report, use date of publication.

7a. TOTAL NUMBER OF PAGES: The total page count should follow normal pagination procedures, i.e., enter the number of pages containing information.

7b. NUMBER OF REFERENCES: Enter the total number of references cited in the report.

8a. CONTRACT OR GRANT NUMBER: If appropriate, enter the applicable number of the contract or grant under which the report was written.

8b, 8c, & 8d. PROJECT NUMBER: Enter the appropriate military department identification, such as project number, subproject number, system numbers, task number, etc.

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11. SUPPLEMENTARY NOTES: Use for additional explanatory notes.

12. SPONSORING MILITARY ACTIVITY: Enter the name of the departmental project office or laboratory sponsoring (*paying for*) the research and development. Include address.

13. ABSTRACT: Enter an abstract giving a brief and factual summary of the document indicative of the report, even though it may also appear elsewhere in the body of the technical report. If additional space is required, a continuation sheet shall be attached.

It is highly desirable that the abstract of classified reports be unclassified. Each paragraph of the abstract shall end with an indication of the military security classification of the information in the paragraph, represented as (TS), (S), (C), or (U).

There is no limitation on the length of the abstract. However, the suggested length is from 150 to 225 words.

14. KEY WORDS: Key words are technically meaningful terms or short phrases that characterize a report and may be used as index entries for cataloging the report. Key words must be selected so that no security classification is required. Identifiers, such as equipment model designation, trade name, military project code name, geographic location, may be used as key words but will be followed by an indication of technical context. The assignment of links, rules, and weights is optional.