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5th Floor, Hunt Library
Carnegie Mellon University
4909 Frew Street
Pittsburgh, PA 15213-3890
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

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The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

March 23, 1956

Dr. Gilbert H. Cady
c.o. Ohio Geological Survey
Orton Hall, O.S.U.
Columbus, Ohio

Dear G. Cady:

Thanks for having the Ohio Survey send me a copy of "Petrographic Constitution of the Maigs Creek No. 9 Coal Bed". Despite my recent defection from the ranks of coal petrography, I am still interested in the field and have enjoyed reading the report. It is the most thoroughly modern piece of coal petrographic research to be published in this country. The treatment of the comparison between the prevalent techniques especially interests me.

A most important fact for all coal petrographers to remember is the one observes quite the same substances in the sections as in polished surfaces. Theoretically, there should be no great difficulty in correlation. I am sure the problem can be successfully dealt with despite the rather discouraging aspects of traditional usages that are hard to impart. After all, coal is not the only heterogeneous substance that has been studied by microscopists using both transmitted and reflected light.

With all best wishes.

Very truly yours,


Alfred Traverse

AT:hmp

Shell Development Company
Exploration and Production Research

October 3, 1955

Dr. Gilbert H. Cady
504 West Oregon St.
Urbana, Illinois

Dear Dr. Cady:

Many thanks for your very nice letter of September 4 which has finally reached me here. I think I should say that my resignation from the Bureau of Mines was a result simply of being offered what I considered to be a considerably better job here; one that I could not honestly turn down despite my regret at leaving what you correctly assess to be a very great research opportunity at the Denver laboratory.

I am very anxious that someone will be found who can satisfactorily carry on the work with the Bureau of Mines. He should find it an advantage to begin with what is a really excellent facility for coal microscopy. In having set up the laboratory I should like to feel that I did not waste the better part of this year!

I do not intend to abandon my interest in coal microscopy altogether, although it must be a subsidiary interest now. It will not be possible for me to forget how much I have enjoyed the last four years of research in this field.

Again, thank you for your kindness in writing, and I am sure you understand and are sympathetic with my decision. Perhaps I can discuss the subject with you some day.

Very truly yours,


Alfred Traverse

AT:hmp

Shell Development Company
Exploration and Production Research

GILBERT H. CADY

504 WEST OREGON ST.
URBANA, ILLINOIS

September 4, 1955

Dr Alfred Traverse
Fuels Microscopy Laboratory
U.S. Bureau of Mines
Denver Federal Center
Denver 2, Colorado

Dear Al:

The news contained in your letter of August 30 surprised me greatly. I am extremely disappointed that matters did not prove satisfactory for carrying on the work in coal petrography or coal microscopy at the Federal Center at Denver. It seemed to me that with the proper cooperation there were great possibilities of usefulness of work in coal microscopy with the western coals. However it no doubt looked like a pretty rough road ahead and the promise of immediate application of your botanical training in the field of correlation and stratigraphy was attractive. You were probably wise in making the choice you did but I am certainly sorry to have you leave the field of coal microscopy.

Wishing you happiness and success in your
new connections, I am

Sincerely yours

Gilbert H. Cady

August 30, 1955

Through Chief, Br. of Coal Tech.

Dr. Gilbert H. Cady
504 West Oregon Street
Urbana, Illinois

Dear Dr. Cady:

Thanks for the letter about the point count micrometer. I think the situation is pretty well in hand, and I am glad to have the information.

It is a little embarrassing to report that after getting this laboratory completely set up and about ready to begin turning out work, I have felt no choice but to resign to take a job with Shell Oil, in Houston, as a plant micropaleontologist. The research opportunity, the pay, and the opportunity for development were just too good to turn down. So now the Bureau of Mines will be looking for a man to replace me here to carry on the petrographic work on Western coals.

Thank you again for your help and friendly interest. I trust that my successor here can also count on you for advice and the benefit of all your experience in this expanding field.

Very truly yours



Alfred Traverse, Head,
Fuels Microscopy Laboratory

cc ✓ ATraverse/dw
File

Region V
Box LL, University Station
Grand Forks, North Dakota

November 23, 1954

Dr. Gilbert H. Cady
Coal Geology Laboratory
Ohio State Geological Survey
Columbus, Ohio

Dear Dr. Cady:

My very brief visit in your laboratory last week was most enjoyable. Of course, I regret I could not have stayed longer. Perhaps it will not be long before another opportunity is presented.

The possible move to Denver that I discussed with you, I find on returning to Grand Forks is virtually an accomplished fact, so sound did the idea seem to my superiors.

Thanks again for a nice visit with you. Best regards.

Very truly yours,



Alfred Traverse
Coal Technologist

ATraverse:vh

cc: Region V
Lankford
Traverse
File 625.1
C File

GILBERT H. CADY

504 WEST OREGON ST
URBANA, ILLINOIS

August 27, 1954⁵

Dr Alfred Traverse, Head
Fuels Microscopy Laboratory
U.S. Bureau of Mines,
Denver Federal Center
Denver 2, Colorado

Dear Al:

I have your letter of August 17th.

I am sorry that I am unable to find the quotation that Leitz made to me on their point system stage micrometer. It was a little over \$100 as I remember. I did not see the instrument while I was abroad and I believe I received their quotation before I went abroad. However, if you wish to do so you can probably get any stage micrometer fixed up so you can use it for point system measurements. The Illinois Survey mechanist fixed one for Siever and one for the micrometer used at Ohio Geological Survey. It would probably cost you a lot less than the price asked by Leitz. The only thing necessary to know is spacing desired, whether 1/2, 1/3, 1/5 mm., or what. This determines the number of notches necessary to have in the wheel. You might ask Leitz to look up my correspondence during the past year.

The mechanist's name is A. W. Gotstein, Illinois State Geological Survey, Urbana, Illinois. I believe the one I had fixed for Ohio used a 1/3-mm spacing. I believe the stage ^{was} one made by the American Optical Co. It was not a Leitz stage but was used on a Leitz microscope.

You probably have the matter well under control by now. I am sorry that I could not get around to answering your letter more promptly but I have been very much on the go. I hope that you are getting your laboratory organized to your satisfaction.

Yours very truly

Gilbert H. Cady

C
O
P
Y

Region V
Box 11, University Station
Grand Forks, North Dakota

February 13, 1953

Dr. Gilbert H. Cady
Illinois Geological Survey
Urbana, Illinois

Dear Dr. Cady,

Your memorandum on the meeting of the International Committee of Coal Petrology was read with great interest. If any system of coal petrography is to be set up which will include the study of all ranks of coal, those of us who study the structure of lignitic coal have especially strong reasons for hoping that the system will be based, at least for lignitic coal, primarily on features observed in transmitted light.

There is abundant evidence that the various plant parts which make up lignite retain far more chemical and physical individuality than do plant parts in coals of higher rank. (The "wood" of North Dakota lignite often retains even the resiliency of wood.) The relatively great importance of paleobotanic observations of lignitic coals, therefore, seems obvious. Polished surfaces cannot be used for really definitive paleobotanic study of the structure of lignite. I am convinced that meaningful petrographic terminology for lignitic coals will have to have some paleobotanic reference.

Then, too, there are "petrographic" features of lignitic coal which must be observed in thin-section. For example, I believe that the many differences in shades of color observed in thin sections of the translucent matter in lignite may conceivably be important in future practical petrographic work with this coal.

Also, thin-sections are technically easier to prepare than polished surfaces, when lignitic coal is studied, or at least that has been my experience. Lignitic coals can be sectioned on the microtome, sometimes with very little preliminary preparation of the sample, producing uniformly thin sections of

high quality. The conventional grinding techniques also yield good sections of lignite, and these may be produced much more easily than similar sections of bituminous coal. In order to make polished surfaces of lignite, however, special techniques are necessary because of the great instability of lignite in the air, and even then moisture-loss may be a factor.

The low-rank coals seem to be step-children in much of the discussion I have heard and read about the nomenclature and techniques of coal-petrography. Yet, the utilization of low rank coals seems likely to become very important in North America.

Very truly yours,

/s/ Alfred Traverse
Alfred Traverse
Coal Technologist

Region V
Box LL, University Station
Grand Forks, North Dakota

February 13, 1953

Dr. Gilbert H. Cady
Illinois Geological Survey
Urbana, Illinois

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The low-rank coals seem to be step-children in much of the discussion I have heard and read about the nomenclature and techniques of coal-petrography. Yet, the utilization of low rank coals seems likely to become very important in North America.

Very truly yours,

AT

Alfred Traverse
Coal Technologist

cc Region V
Dr. Traverse ✓
File

Memorandum

To: American Friends of Coal Geology
From: Gilbert H. Cady, Urbana, Illinois
Date: January 27, 1953
Re: Meeting of International Committee of Coal Petrology.

The First Meeting of the International Committee of Coal Petrology
will be held at Geleen, Holland, June 9, 10, and 11, 1953.

Considerable progress in the technology of coal petrology (anthracology) has been achieved in recent years by European geologists and coal technicians at laboratories at Essen and Krefeld, Germany, and in England. The nature of applied coal petrology has been exhaustively described in the new Atlas der angewandte Steinkohlenpetrographie (Glückauf, 1951), in the recently published large work Mikroskopie der Steinkohle, des Kokes, und der Braunkohle, and in textbooks by Prof. Dr. E. Stach. Reflectance of coal has received much attention by Dr. C. A. Seyler of the British Coal Utilization Association. This group of people are strong adherents of the polished surface technique and have worked together in relatively close agreement in the development of methods of description, research, terminology, and classification. Professor Stach has been a prolific writer in the support and perfection of the microscopy and other techniques of polished surface examination. In general this group appears to regard it part of their mission to deprecate any advantages that thin section technique may possess. It appears that they are now desirous, in the name of an International Committee, of presenting their case in an authoritative manner, and judging from what has happened in the past the proposed meeting will doubtless seek to establish, on the basis of decisions passed by this International Conference, a standard system of coal description and classification based entirely upon the polished surface technique. Whether or not this is desirable it is important that American coal petrologists be represented in the deliberations.

For about 30 years American Coal Petrology, except for recent important "deviations" in Nova Scotia, has followed the thin-section technique established by R. Thiessen and adopted by the U. S. Bureau of Mines, with some leanings toward the Stopes' classification and terminology manifest in the publications of the Illinois State Geological Survey. To the writer the Thiessen system seems fundamentally objective in its greater emphasis on the interpretation of coal constitution in terms of its botanical composition as an accumulation of fossil plants and plant components and secretions requiring only limited refinement in microscopic technique. In the pursuit of this phase of coal geology there has developed incidentally a large interest in the fossil spores of coal as a means for stratigraphic identification and classification. In general it has been shown by thin sections that anthraxylon consists predominantly of coalified wood (including bark), that attritus is composed of the protobitumens (waxes and resins), finely macerated humic substances, and opaque material, and that fusain or mineral charcoal is a common constituent of coal. In such a classification the emphasis is mainly on the botanical or genetic constitution of coal. There is, I believe, a general feeling in this country that for studies in coal genesis the thin section procedure is superior to any other.

Polished surface technique, it seems to the writer, is primarily based upon subjective interpretation of the impressions received from observations of coal under conditions of increasing refinement in microscopic technique. Emphasis is placed upon the characteristics of coal as a rock and the components are designated as analogous to rock types, in fact, are called rock types, which, in turn, are composed of mineral-like organic substances designated as "macerals", a name suggested by the word mineral. On these bases coal is studied by methods similar to those used in the study of rocks, analogs being designated by such terms as vitrinite, micrinite, fusinite, etc., such materials being regarded as definite substances like minerals irrespective of the fact each exists only as a fossil botanical entity and none have definite outward form controlled by inner molecular structure or exact chemical composition as do minerals. On the petrographic basis an excellent technique has been developed for the identification and study of the macerals with some microscopic equipment specially designed for the purpose.

Opposed to this maceral concept it has been suggested by the writer, since there are actually no such "mineral" substances divorced from the botanical entities in which they occur, that the term "phyteral" be used as a generalized term to apply to the fossil entities as discovered by thin sections and maceration investigations. Thus, although the term "exinite" might be the generalized petrologic term applicable to protobituminous substances this material would be revealed as consisting of phyterals such as spores, cuticles, etc.

The adherents to the practice of polished surface technique seem to be well aware of the limitations of this technique in certain particulars and of its failure to win much support in America. Considerable thought and effort has been expended in the development of special methods of handling polished surfaces of coal by etching and by special microscopic methods whereby the true organic nature will be revealed in somewhat the same degree that it is revealed by thin sections. There exists considerable doubt, however, in spite of the care exercised in preparing the specimens that they are equally revealing of the coal constitution, can be more easily prepared than thin sections, or can be relied upon for disclosure of the botanical composition of coal in the place of thin sections. In other words, in some instances at least, thin sections are indispensable. The main advantage of the polished surface in studies of coal genesis appears to apply to high rank coals of which it is impossible to make thin sections, so that the best possible use has been made of the less satisfactory polished surfaces.

Polished surface technique has proved of practical usefulness in applied anthracology where the main distinctions thought necessary are between "vitrinite", "exinite" (including all protobituminous phyterals), and "inertinite" (see Stach: Brennstoff-Chemie vol. 33 (21/22): pp. 361-370, Nov. 19, 1952) which term includes fusain and micrinite or opaque matter of any kind. Such differentiation is made, however, using carefully developed technique in coal microscopy. It allows for petrographic analysis in terms of the macerals with little need for interpretation in terms of the phyterals that are present in the coal. Under "exinite" spore coats, cuticles, resins, and waxes will all be grouped together. This procedure has not been sufficiently extensively applied, at least in this country, to know whether or not finer distinctions based upon botanical considerations are desirable, if not essential. The possibility that the classification of all carbonized material, both fusain and all opaque matter, simply as inertinite, is

inadequate is indicated by the reported differences in the reactivity of opaque matter (micrinite) to hydrogenation.

At the present moment the polished surface petrologists are making the most of the usefulness of their technique in applied coal petrology. This aspect of coal geology has not received a great deal of attention in this country, largely it is believed because the practical usefulness of the polished surface technique has not been realized and partly because the coal and related industries have not until recently become aware of the practical value of coal petrology to industry. Probably the two causes have worked together to delay wider recognition of the value of this field of technology.

The writer is addressing this memorandum to the Coal Geologists of America with several purposes in mind: First, to present personal ideas in regard to the present status of coal petrology or anthracology in this country and in Europe; second, ask any of you who may plan to be in Europe during June and can arrange to attend the meeting at Geleen, Holland, on the 9th, 10th, and 11th of June, to kindly advise me or Dr. A. T. Cross so that an invitation to and eventually a program of the meeting can be sent to you; third, to obtain suggestions in regard to desirable topics for consideration. If you can make personal contributions to the program kindly notify me of the proposed topic and its duration as soon as possible so that the information can be sent to the Secretary, Professor Dr. E. Stach, so as to reach him before April 1. Finally I should appreciate receiving suggestions that would result in a more satisfactory coal classification than is possible for one based solely on considerations resting on polished surface technique. It is particularly desirable to have ideas that will assist in establishing a standard international classification that will be satisfactory to American coal petrologists as well as to those in Europe.

Either I or some other member of the Coal Geology group will attend the meeting of the International Committee and it is desirable to have this person suitably equipped to present a good case for American practice and for American needs. It is essential for your own interests to have this case well set up. Cooperation is essential. Unfortunately no definite agenda for the meeting have been announced; we can only base our expectations on the books and articles that have set forth the ideas of the more articulate of the European coal geologists.

You doubtless will hear from me again as the plans for this meeting develop.

Best wishes.

Region V
Box LL, University Station
Grand Forks, North Dakota

April 29, 1953

Dr. Gilbert H. Cady
504 West Oregon Street
Urbana, Illinois

Dear Dr. Cady:

Your letter of April 24 was very interesting. I think it is a fine thing that you will be able to attend the Netherlands conference. Bob Kesanke had written me about this earlier in the month, and I have prepared some material for him about my equipment and activities, as requested by him. I enclose a copy of my letter to him. Presumably, you will be able to use some of the stuff sent him, if you wish.

I might add a few words on several points. Re applied coal petrography here: I feel that the line between "applied" and "pure" research is, as many have said, imaginary, and I am trying to enlarge the rather meager knowledge we have about the microstructure of lignite in the expectation that such basic information will have applications. However, I am planning some more strictly "applied" work. Investigation of the changes that take place in lignite during the course of utilization studies here might suggest valuable modifications of technique in these processes. Studies of the run-of-mine product of various mines may suggest why different behavior is noted in the lignites from different North Dakota mines - chemical analyses of these lignites frequently show apparently insignificant differences.

However, the lignite of this region is, at this time, used almost entirely as a fuel. Consequently, it seems to me that my most important function from what is usually called the practical standpoint is to expand our basic knowledge of the microstructure of lignite, so that this information will be available when the diversified commercial uses of lignite become more of a reality.

About thin-sections versus polished surfaces:

1. I don't think the botanical versus geological approach can be equated with the thin-section versus polished surface approach. Petrographers of hard rock make

and use thin sections, as you know. The sections I am making of lignite here are, indeed, being prepared by the grinding and polishing technique, which is not a botanical technique. (I do plan to make use of microtome sections also - but the polished thin section has certain advantages - especially that the lignite does not have to be treated in any way before sectioning.)

2. The recent papers of Teichmüller have pointed out that the polished thin section is a polished surface as well as a thin section and can be studied by reflected light and also by transmitted light, with a few modifications of technique. Miss Teichmüller's recent contributions seem to me to point the way to a really rational synthesis. She says, "... der Kohlendünnschliff... bei Kohlen mit mehr als 30% flüchtigen Bestandteilen so viel mehr Strukturfeinheiten als der Anschliff heraus, dass er mindestens für wissenschaftliche Untersuchungen unentbehrlich ist." (Note that I am working exclusively with lignite, a coal which falls neatly into this group.) Miss T. goes on to say, "Es wird sich in folgenden zeigen dass sich Anschliff- und Dünnschliffmethode ergänzen und daher nebeneinander angewandt werden sollten". (Handbuch der Mikroskopie in der Technik, Band II, Teil I, Kohle, Koks, S. 298, Frankfurt a. M., 1952) With coals which are prevalently translucent, it is evident that Teichmüller favors the use of transmitted light. It is noteworthy that she studied under the deans of both techniques (Stach and Thiessen). I have had the opportunity of learning the polished thin section technique from Thiessen's successors at Pittsburgh, and wish I could duplicate Miss Teichmüller's experience by having the opportunity of studying the German techniques.
3. In my letter to you of 13 February, I said that, "...polished surfaces cannot be used for really definitive paleobotanic study of the structure of lignite". Note the word paleobotanic. I did not say, nor mean to imply, that polished surfaces are not utilizable, but I was attempting to emphasize that, with lignitic coals, botanic features are of

obvious importance (lignites retain even chemical evidences of their origin as plant tissues!) Botanical studies of coal will have to be made by transmitted light because the modern reference material is best so studied, to cite only one reason. Petrographic studies of lignitic coal must have a paleobotanic frame of reference because of the nature of the material. Therefore, thin sections are of great importance. I would suggest that studies by reflected light could be used in conjunction with those by transmitted light. This is, it seems to me, the most rational idea - lignitic coals often do contain much matter, opaque in thin section, which could obviously be better studied with reflected light. Why not use both reflected and transmitted light?

4. In the paper I gave in Boston I pointed out that preparation of polished blocks for megascopic study is not much good with lignite. This is because of its great instability in the air and its relatively non-compact nature. The use of such examination is standard Bureau of Mines procedure for bituminous coal. This point is not related to the preparation of polished surfaces.

I much appreciate your continued interest in my work and look forward to seeing you again. If it can be arranged, I would like to get to the Toronto meetings in November. Re your comment on "economy": I have had no help except for a little part-time assistance since I came here, so it is hard to imagine how I can move any way but up.

Best wishes for a fruitful voyage.

Very truly yours,

AT

Alfred Traverse
Coal Technologist

AT:dm
Enc.

cc Region V
Mr. Lankford
File - 626.1
C. File

✓Dr. Traverse

GILBERT H. CADY

504 WEST OREGON ST.
URBANA, ILLINOIS

April 24, 1953

RECEIVED

APR 27 1953

U. S. Bureau of Mines
Grand Forks, North Dakota

Dr Alfred Traverse
Coal Technologist
Boxx LL University Station
Grand Forks, North Dakota

Dear Dr Traverse:

This letter is in part a belated acknowledgement of the receipt of your much appreciated letter of February 13th. I note your very positive commitment to thin section technique for the study of lignite. You do not indicate how much experience you have had in preparing and working with polished surfaces of lignite. It may be a fortunate matter that most of the people working in coal petrology in this country have a background in botany, but in general they find thin sections so satisfactory that they do not fuss around much with polished surfaces. I hope to learn something about the technique used in Germany in connection with low rank coals in applied coal petrology in connection with my trip to attend the Galeen conference.

My chief purpose in writing you at this time is with the hope of getting from you a statement your activities in the field of applied coal petrography, that is with respect to problems connected with mining, preparation, and utilization. Dr Kosanke and I are working up a statement of American Anthracology (Coal Petrology) and I wish to give each laboratory due credit for any applied petrology under way. I am less concerned with results obtained which you may not be ready to announce as in a description of the activities and techniques and equipment of special interest. I think you rightly regard the future of low rank coals as of great importance and am interested to know how you think coal petrology fits into the picture.

I hope that you continue to find your work interesting and that "economy" is not going to hit your plans too hard.

Sincerely yours

Gilbert H Cady



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Box LL, University Station
Grand Forks, North Dakota

May 29, 1952

Mr. Paul H. Kratz
Division of Mathematical, Physical and
Engineering Sciences
National Science Foundation
Washington 25, D. C.

Dear Mr. Kratz:

I have read over the interesting proposal of
Dr. G. H. Cady, and I enclose my comments on it.

Sincerely,

ALFRED TRAVERSE
Coal Technologist

Encl.

cc: Region V
Traverse ✓
File

1. Petrographic studies in this country represent such a tiny surface scratch of the possibilities of the method, that initiation of such a program as this is of intrinsic importance. A petrographic survey of Ohio coal deposits would enrich our knowledge of the whole carboniferous coal system of this country. The results of the work should be especially interesting in that they would presumably mesh with similar studies of West Virginia, Indiana and Illinois coal, already in progress.

2. and 3. These are most difficult, probably impossible, to assess. I should say only that we need to know as much as possible about coal, our largest source of fossil energy. The results of coal paleobotanic and petrographic work are important because research should push back the frontiers of the unknown, in all directions. Nobody can tell what the dollars-and-cents worth of these investigations might be. x

4. Program satisfactory.

5. I don't think much of Orton Hall as a place to work. It is very crowded, murky and depressing. Leave aside the building itself and the location is ideal--near to libraries, Batelle Institute and Dr. Schopf's coal geology laboratory. x

6. Not a factor--there is so little work being done in coal petrography.

7. Dr. Cady, of course, is the dean of American coal petrographers. Nobody on the continent can touch him for experience and proven ability in the field.

I have the impression, though, that he will only supervise this program. I should have to know more about the "chief technician" before my comments would be of much value.

8. Obviously good.

9. Not many who have become prominent in coal petrography. I am not familiar enough with the detail to know if he has had the opportunity to have more students.

10. Good.

11. Satisfactory in general. I am somewhat curious about the "chief technician". I doubt that \$4000 will hire the top notch person they need unless he is to be a doctoral candidate at the same time. I should rather see a \$5000 man hired to conduct the research work and \$1000 out somewhere else.

I am convinced that two \$800 research microscopes are more valuable than one \$1500 instrument, having worked both ways. Two microscopes are much better for comparison work, and the optics of an \$800 instrument are generally the same as those on a \$1500 'scope.

12. No comment.

13. Dr. Aureal T. Cross
West Virginia Geological Survey
Morgantown, West Virginia

Dr. William Spelman
Mineral Science Building
State College Pennsylvania

Dr. Elso S. Barghoorn
Biological Laboratories
Harvard University
Cambridge, Mass.

Gilbert H. Cady

NATIONAL SCIENCE FOUNDATION
WASHINGTON 25, D. C.

- Owen
- Kosanke
- Spackman
- Carhoun

RECEIVED

May 21, 1952

MAY 26 1952

**U. S. Bureau of Mines
Grand Forks, North Dakota**

Dr. Alfred Traverse
Lignite Research Laboratory
University of North Dakota
Grand Forks, North Dakota

Dear Dr. Traverse:

We are taking the liberty of enclosing Proposal No. 226, for a research project submitted by Dr. Gilbert H. Cady of the Ohio Department of Natural Resources, for support by the National Science Foundation, with the request that you review and appraise it. There is also enclosed a list of suggested questions which you may wish to consider in making the review, and a rating form with space for comments concerning the proposal.

This is an interim procedure while the Foundation is engaged in establishing a systematic method of processing requests for grants in support of basic research.

Your help in making the evaluation will be very much appreciated, since it will also assist us in the development of a regular procedure in processing requests.

A return franked envelope is enclosed.

Sincerely yours,

Paul H. Kratz
Paul H. Kratz
Division of Mathematical,
Physical and Engineering
Sciences

Enclosures

12 October, 1951

Dr. G. H. Cady
Senior Geologist and Head, Coal Division, emeritus
State Geological Survey Division
Urbana, Illinois

Dear Dr. Cady:

As I think you already know, I have been appointed to do work in coal petrography at the new U. S. Bureau of Mines lignite research laboratory in Grand Forks, North Dakota. Since I am primarily a paleobotanist, I have spent three months here studying the Bureau's techniques in coal petrography to better equip me for the work in North Dakota. On my way out to Grand Forks I'd like to stop in Urbana for a few days to see the laboratories and meet the staff. I particularly hope to be able to spend some time with Dr. Kosanke, whom I am also writing. I plan to be in Urbana the 12th and 13th of November, unless I hear word to the contrary.

Sincerely yours,

Alfred Traverse