time for the appointment of seven consultants, three in literature and history, one each in economics, sociology, philosophy and science. The first consultant in science was Dr. Alfred C. Lane, of Tufts College, in the field of geology. The present consultant is Dr. H. W. Tyler, formerly of the department of mathematics in the Massachusetts Institute of Technology.

No consultant in science will naturally undertake personal responsibility in the field as a whole, but the more modest function of acting as a medium of communication with specialists in the various fields seems within the range of practicability.

The object of this note is to make the plan better known to the readers of SCIENCE with the hope that they may be interested to communicate with the consultant, either in the sense of presenting questions on which information is desired, or offering suggestions for making the service increasingly useful.

H. W. TYLER

REPORTS

THE INTERNATIONAL GEODETIC AND GEOPHYSICAL UNION

THE World War made an unusually wide and enduring breach between scientists belonging to countries arrayed against one another in that conflict. Although geophysics is essentially an international science, strangely enough it has seemed to be precisely in connection with geophysics that the breach was apparently the widest and most enduring. The following translation from the current number of the *Zeitschrift für Geophysik* may be of interest as showing that the breach is now in a fair way to be healed. The London Manifesto, to which reference is made, was a statement drawn up at a meeting that eventually resulted in the organization of the International Research Council. It found its way by implication into the statutes of the Research Council, but all reference to it was removed in 1926.

Extract from the minutes of the general meeting of members of the Deutsche Geophysikalische Gesellschaft held at Potsdam on September 13, 1930, page 503:[1]

Mr. Kohlschütter reported on the negotiations with the International Geodetic and Geophysical Union and on the visit to the meeting of the Union held this year in Stockholm. After a thorough discussion, in which Messrs. Wigand, A. Schmidt, Weickmann, Conrad, Haussmann, Perlewitz and Tams took a chief part, the following resolutions were adopted on motion of Mr. Wigand:

(1) The meeting approves the conduct of the Executive Committee (Vorstand) and of the Stockholm delegates in regard to the International Geodetic and Geophysical Union (unanimously adopted).

(2) The meeting empowers the Executive Committee, in conjunction with the Deutsche Meteorologische Gesellschaft, the Reichsbeirat für das Vermessungswesen, the Conference of Directors of German Hydrological Institutions and the principal German institutions concerned, to prepare the way for the adhesion of Germany to the International Geodetic and Geophysical Union.

In the declaration of adhesion, it shall be stated that adhesion is made on the assumption that the London Manifesto of November 10, 1918, is considered by the Union to be unjustified.

[1] Proceedings of the Deutsche Geophysikalische Gesellschaft, as reported in the *Zeitschrift für Geophysik*. VI. Jahrgang, 1930, Heft 8.

Extract from the annual report of the executive committee of the Deutsche Geophysikalische Gesellschaft for the year 1929–1930 (from October 1, 1929, through September, 1930), page 504:

In April last, the Gesellschaft received through the London Embassy and through the Ministry of Foreign Affairs an invitation from the President of the International Geodetic and Geophysical Union to take part in this year's meeting of the Union at Stockholm. Since Germany is not a member of the International Research Council nor of the Geodetic and Geophysical Union, which is a part of it, German geodesists and geophysicists could participate only as guests. Unfortunately there was attached to this general invitation the condition that the German scientists prepared to take part should address to the President [of the Union] an appropriate request. In our answer, which was decided on at a meeting of the Executive Committee in Berlin on April 28, 1930, we expressed our entire willingness to send to Stockholm several members representing the various branches of geodesy and geophysics, but we felt unable to urge the members in question to make request for an invitation. Although, as we have learned, a number of foreign colleagues urged upon the President [of the Geodetic and Geophysical Union] the desirability of having unconditional invitations sent to the members especially designated by us for the purpose, it was not until the first day of the Stockholm meeting and after being unanimously requested by the delegates present that the President decided to send a telegraphic invitation to the German representatives. This telegraphic invitation, which was warmly seconded by the Swedish local committee, was accepted by Messrs. Angenheister, Hecker, Kohlschütter, Linke and Nippoldt. Though we took part principally in the scientific proceedings, we also took the opportunity to state our views regarding such changes in the organization of the Research Coun-

cil and of the Geodetic and Geophysical Union as we deemed necessary. It is a satisfaction to report that the newly adopted statutes of the Union, and also the statutes of the Research Council, as prepared by the Committee on Revision of Statutes of the Research Council for action at the plenary session of the Council to be held next year, are in substantial conformity with German desires, so that in the opinion of those who took part in the Stockholm meeting the way is now open for German geodesists and geophysicists to join the International Geodetic and Geophysical Union. The adhesion of Germany to the International Research Council is no longer a prerequisite to adhesion to the various unions; the question of adhesion to the International Geodetic and Geophysical Union is, therefore, laid before the members [of the Deutsche Geophysikalische Gesellschaft] for decision.

W. D. L.

SCIENTIFIC APPARATUS AND LABORATORY METHODS

PEN AND INK DRAWINGS FROM PHOTOGRAPHS

THE ordinary method of making line drawings for publication by means of the camera lucida is tedious, especially when minute details are concerned. Photographs are frequently blurred, often do not give enough contrast or are not clear enough to be suitable for publication. The method here presented combines both the clearness of definition of the line drawing and the accuracy of the photograph. Very little seems to be known of the method in scientific fields, but it is used commercially to a considerable extent to make various types of etchings and line sketches.[1] In general, the procedure is to photograph the material, make a print on a good grade of paper and draw over it with India ink. All stippling or other shading may be done directly on the photograph. The print is then placed in solutions which bleach away the photographic image and leave the ink tracing standing out on a white background. If the original photograph is so small that details can not be drawn in easily, it may be enlarged several times, treated as above and the drawing reduced in reproduction.

The process of removing the photographic image is accomplished by two solutions. The first dissolves away the photographic image and the second bleaches the paper.

Solution 1.	Potassium iodide	15 gms
	Iodine	5 "
	Water	500 cc
Solution 2.	"Hypo" crystals	100 gms
	Water	450 cc

When the ink on the drawing is thoroughly dry, quickly immerse the print in solution 1. Rock the tray immediately so that the solution covers the print rapidly and evenly. The photographic image will disappear almost at once, and at the same time the print will become brown from the iodine. As soon as all traces of the photograph have disappeared, remove the print and wash gently in water in order to remove the excess iodine. Then place in solution 2. Here the brown color is completely lost and the print becomes quite white in about five minutes. Transfer to water and wash thoroughly to remove the "hypo." Dry the print by placing it in a horizontal position on blotting paper. It will curl as it drys, but later it can be flattened by dampening the back and placing in a press. Throughout the entire process care should be taken that nothing touches the surface on which the drawing has been made, for the ink smears very easily while wet. The iodine solution may be used repeatedly until it becomes too weak, when it may again be brought to strength by adding more iodine. The "hypo" solution may likewise be used many times.

The method has been used by the writer to make drawings of section of leaves. Microphotographs are taken on a 3¼ x 4¼ inch negative and enlarged to a 5 x 7 inch print. The time required to take the photograph and to complete the entire process is very little more than that required to make a camera lucida drawing. After the chemical treatment no traces of the photograph remain, and the drawing stands out on a white background without any staining or blurring of the print. If desired, pencil or even charcoal may be used in place of the ink.

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[1] J. C. Tobias, "Working up Silver Prints," *Am. Ann. of Photo.*, 44: 30–38, 1930. The writer also wishes to make acknowledgment to J. P. Barham, of the photographic service department of the University of Missouri, who first brought the method to his attention.

A METHOD OF CLEANING MICROSCOPICAL FOSSILS

ONE of the difficulties of cleaning microscopical fossils, already removed from out the matrix, is in keeping them in a desirable position under the microscope, while working on them with a needle. There is always the great danger of crushing them with forceps or of losing them when they jump out of the forceps.

In my work on foraminifera I was able, to a certain