THE Institute of Medicine of Chicago again offers the Joseph A. Capps Prize of $500 for the most meritorious investigation in medicine or in the specialities of medicine, or in the fundamental sciences provided the work has a definite bearing on some medical problem. Competition is open to graduates of Chicago medical schools who have received the degree of M.D. during the year 1932 or thereafter, and manuscripts must be submitted to the secretary of the institute, 122 South Michigan Boulevard, Chicago, not later than December 31, 1934. If no paper presented is deemed worthy of the prize, the award may be withheld at the discretion of the Board of Governors.

UNDER the will of Mrs. Mary Jane Williams, widow of Dr. Charles Theodore Williams, honorary fellow of Pembroke College, Oxford, £30,000 is left to the University of Oxford, to be expended in the promotion of medicine; £5,000 to the Royal College of Physicians, and a large residue to Pembroke College.

DISCUSSION

REFORM IN THE SYSTEM OF SCIENTIFIC PUBLICATION

THE following proposal, submitted to the sixteenth International Geological Congress in its session in Washington on Friday, July 28, 1933, and approved by the congress, may be of interest in connection with the articles of Dr. Seidell and Dr. Visscher in SCIENCE for July 20, 1934, page 70, and September 14, 1934, pages 245–246, respectively.

A PROPOSAL OF THE ASSOCIATION OF SCIENTIFIC INSTITUTIONS OF THE MINING INDUSTRY IN THE U. S. S. R. TO THE INTERNATIONAL GEOLOGICAL CONGRESS, XVI SESSION, IN WASHINGTON, U. S. A.

The growth of special scientific literature, published chiefly by numerous scientific institutions, is increasing with marked rapidity. It becomes more and more difficult to follow up this special literature, and it wastes a great deal of the time of investigators. In consequence of this, special periodicals are issued exclusively for the purpose of reviewing and summarizing these scattered publications. In other periodicals again much space is taken up in reviewing articles. Some small papers are reviewed several times over, and altogether more time and money is spent on the publishing of the reviews than on these papers themselves. A means of diminishing as far as possible this nonproductive work and of making scientific literature accessible to every person of moderate means, living far from great centers with large libraries, is available:

1. By dividing up even the most specialized periodicals, geological, mineralogical, etc., into "separates."

2. By centralizing and systematizing these "separates" in central bibliographical institutes for every subdivision of science in every country.

At the beginning some subdivisions of science may be centralized especially in countries where a small number of scientific papers is published. In these institutions a subscription is to be organized not for periodicals, but according to subjects.

It is proposed that every scientific paper should be published as a separate, preserving on it the numbering of the pages of the periodical. Many scientific institutions practice this mode of publishing. The scientific institutions of the U. S. A. in particular have in this way greatly contributed to the progress of scientific research.

The publishing of separates is helpful not only to scientists but to the smaller libraries as well. Such separates would enable the libraries to avoid unnecessary duplication. It is useful, on the other hand, to issue these publications in complete and uniformly bound volumes. It follows, therefore, that to save the money both of the publishers and of the readers, the methods of publication used by the institutions should be regulated as follows:

1. Scientific institutions for the purpose of exchange with other institutions and for distributing their publications among large libraries should as far as possible issue their publications in complete bound volumes.

2. Scientific institutions for the purpose of circulating the results of the research of their members as widely and as rapidly as possible should issue each publication in separates and at as low a price as possible, which should be printed on the back of the cover.

For the complete success of this project, it is necessary that private persons publishing special scientific periodicals should introduce a twofold method of publication—as separates and in complete volumes. The profit the publisher obtains from the sale of separates will certainly compensate the fall in the number of annual subscribers.

All the aforesaid concerns only those periodicals that publish larger articles; short notices and articles (of one or two pages) which are not suitable for printing as "separates" should be published according to the subject they treat (geology, mineralogy, petrology, etc.) in special periodicals (*The American Mineralogist, Centralblatt für Geologie*, etc.).

To make the work of assistants in the central institutes entirely mechanical it will be necessary to print on the cover of the separates the symbols (letters or ciphers) assigned by the International Catalog of Scientific Literature to the given branch of science.

For example; on the cover of the separate: Serra, Aurelio, Su un notevole granato di Fluminimaggiore. Napoli, Rend, Acc. Sc. (ser. 3) **16**, 1910 (222–224):

In the left-hand upper corner should be printed 60 dh; 60 = Geographical distribution, dh = Italy. In the right-hand upper corner should be printed 50; 50 = Descriptive mineralogy.

As it is difficult to judge from the title what signifi-

cance the author attaches to his paper, it is necessary to put the subject symbol in brackets when the investigator emphasizes the local interest of his paper and *vice versa.*

The Association of Scientific Institutions of the Mining Industry in the U. S. S. R. addresses the council of the congress with the following proposal:

Will the council of the congress find it possible to apply through its members or otherwise, to those scientific institutes which do not yet print separates for sale, with the request that they publish mineralogical, geological, petrological, and paleontological papers not solely in the periodicals published by them, but also as separates?

Will the council of the congress find it possible to apply through its members, or otherwise, to these mineralogical, geological, paleontological, and mining institutions with the proposal to organize such institutions for propagating and distributing scientific literature on geology, mineralogy, petrology, and related branches of science?

The association, for its part, will do its best to forward the carrying out of this proposal in the U. S. S. R.

(Signed)

President, PROF. N. FEDOROVSKY
Secretary, T. SALKIND

In the discussion it was pointed out that publishers, who are always willing to issue a given number of separates on request, might find it an expensive proposition to publish regularly separates of each paper, even though there might be little demand for many of them. In reply, it was suggested that it might be possible for publishers to maintain a subscription list for separates just as for the entire series.

MARCUS I. GOLDMAN

U. S. GEOLOGICAL SURVEY
WASHINGTON, D. C.

THE MECHANISM OF THE ANTIDOTAL ACTION OF METHYLENE BLUE IN CYANIDE POISONING

BROOKS[1] has recently published results of experiments which she believes prove conclusively that methylene blue does not act as antidote for cyanide in animals by converting hemoglobin to methemoglobin (known to combine rapidly and firmly with cyanide), as was suggested by Hug[2] and the writer.[3] Rather, Brooks contends that the dye antagonizes cyanide poisoning by acting in the tissues as a reversible oxidation-reduction system. Brooks bases this conclusion upon her failure to detect methemoglobin in the blood of animals following administration of the dye.

The papers and conclusion of Brooks are subject to criticism on two accounts. *First:* Brooks states that the system blood-methylene blue *in vitro* (the behavior of which originally suggested to the writer that methemoglobin formation might account for the dye's action *in vivo*) differs markedly as regards glucose concentration from the same system *in vivo. In vitro,* she says, the glucose is "quickly used up" and "methemoglobin heaps up." It should be pointed out that methylene blue does not remain in the blood in significant quantities longer than thirty minutes after intravenous injection, and that in so short a period normal blood does not show a greatly reduced glucose concentration when incubated *in vitro* (at 37°) with methylene blue. In fact, the rate of disappearance of glucose from blood thus incubated is only slightly greater than that due to glycolysis alone. Since space limitations prohibit complete discussion of the several factors involved the reader is referred to the papers of Barron and Harrop, Warburg and coworkers and the writer[4] for clarification.

There is a striking difference between the system *in vivo* and *in vitro;* it concerns, however, methylene blue concentration. This difference is determined by the rapid disappearance of the dye from the blood following injection. Fifteen to twenty minutes after intravenous injection of 15 mg of methylene blue per kilo into dogs extremely little of the dye remains in the blood; it has gone into the tissues. This fact accounts for failure of methemoglobin to accumulate in detectable quantities.

Second: Brooks does not deny the formation of methemoglobin by the action of methylene blue on blood *in vivo.* She denies its accumulation. She states that *in vivo* methemoglobin is reduced as fast as it is formed. The writer's experiments are in agreement with this statement. No methemoglobin (less than 3 or 4 per cent. of the total pigment) accumulates when the dye alone is administered in clinically recommended quantities. Brooks, however, fails to consider the difference between the behavior of the system blood-methylene blue and the same system plus cyanide. Cyanide, by combining with methemoglobin as it is formed, effectively blocks its reconversion to hemoglobin by leuco-methylene blue (Warburg and Reid) and by the enzyme systems in the red blood cells (Wendel), and thus causes methemoglobin to accumulate (as cyanmethemoglobin). This is readily demonstrable *in vitro.* Furthermore, the writer finds, on the average, something over one half of 2 M.L.D's. (6 mg of HCN per kilo) of subcutaneously administered cyanide bound as cyanmethemoglobin in the circulating erythrocytes of dogs saved from such quan-

[1] M. M. Brooks, *Proc. Soc. Exp. Biol. Med.,* 31: 1134, 1934; and SCIENCE, 80: 15, 1934.

[2] E. Hug, *Compt. rend. Soc. biol.,* 112: 511, 1933.

[3] W. B. Wendel, *Jour. Amer. Med. Assoc.,* 100: 1054, 1933.

[4] For references of the large number of papers by Barron and coworkers and Warburg and coworkers, the reader is directed to the bibliographies in the writer's papers: *Jour. Biol. Chem.,* 102: 373 and 385, 1933.