about 100,000 square miles from Dubuque, Iowa, to Chelsea, Vermont, must have been carried over 1,000 miles at high altitudes from the arid southwest (Arizona and New Mexico) *before* it began to settle down.

It would seem probable, therefore, that the formation of fog in England and Belgium would easily be increased over a reasonable period of time following storms of the character recently reported.

The next point to consider is why, in certain localities, the fog was followed by fatalities. The following suggestion is offered as a possibility:

The newspaper reports indicate that the persons and animals were attacked suddenly with symptoms which, because of their abruptness and nature, lead one to suspect that they were in the nature of anaphylactic phenomena. The time of exposure prior to seizure was much too short to suggest the possibility of bacterial infection, and there seems to have been no ground whatever for the initial surmise that some hidden store of war poison-gas had suddenly escaped. It would seem possible that the heavy fog, in settling down, had accumulated in and on its droplets substances which precipitated the onset of anaphylactic shock in persons and animals previously sensitized. Thus, for example, it might be possible that castor bean cake containing the poisonous protein ricin had been used as a fertilizer in that neighborhood, and that some men and animals had become sensitized to it. The fog, in settling, might have accumulated and brought into the lungs of these sensitized beings sufficient ricin dust to occasion the onset of anaphylaxis. A few years ago, SCIENCE printed a note from a professor who had become sensitized to ricin and who had a violent attack of "hay fever" when someone in his laboratory merely opened a bottle of castor beans.

We do not, of course, know anything about the local situation, but it would be well if the possibility above suggested be kept in mind and search be made for conditions and substances which might be responsible for the onset of asthmatic or anaphylactic manifestations.

JEROME ALEXANDER

SPECIAL CORRESPONDENCE

COMMITTEE ON DRUG ADDICTION OF THE NATIONAL RESEARCH COUNCIL

IN January, 1929, the Bureau of Social Hygiene, Inc., offered to the National Research Council a sum of money to be spent in the study of drug addiction. The council accepted the funds and appointed in its Division of Medical Sciences a Committee on Drug Addiction to draft a plan of research work. The members of this committee are: Wm. Charles White, Charles W. Edwards, Carl Voegtlin, Torald Sollmann, Reid Hunt, C. S. Hudson, F. B. LaForge, Walter L. Treadway, Ludvig Hektoen, and the chairman of the Division of Medical Sciences.

After numerous conferences with those best equipped to give advice, the committee concluded that there were two avenues of study that might bring some help in the problem of drug addiction and it adopted these avenues as the most likely to succeed.

The first avenue of approach would be an attempt to replace all the uses to which addiction drugs are put by drugs without addiction properties. The basis for this attempt was: (*a*) that morphine had a high addiction property while codeine had a comparatively low addiction property, and codeine can replace many uses of morphine if used in larger doses; (*b*) that since the replacement of practically all the uses of cocaine, except in the surface application for anesthesia, with drugs having little or no addiction properties the importation of coca leaves has declined. That the latter condition should occur held out hope that if all the uses made of addiction-producing drugs could be limited to legitimate use only and in many cases drugs not having addiction-producing properties could be substituted for those with addiction properties, the difficulty of controlling the production of addiction drugs and of handling the national and international problems attending them would be rendered easier.

The committee found, however, that in the United States few chemists were interested in the field of alkaloid chemistry nor had been, as evidenced in the literature, for over a period of twenty-five years. The committee was agreed that to find substitutes for addiction-producing drugs it would be necessary to set up a unit devoted to analytical and synthetic work in the field of alkaloid chemistry. It found that one man, Dr. L. F. Small, had just returned to the United States to the University of Virginia after having spent two years of research under Professor Wieland on alkaloid chemistry. The committee immediately entered into negotiations with President Alderman, of the University of Virginia, and Professor Benton, of the Department of Chemistry there, and, owing to their sympathetic cooperation, a laboratory for the study of alkaloid chemistry was organized at the University of Virginia with Dr. Small in charge. The committee hopes that this unit may develop into a permanent unit for the study of alkaloid chemistry in the United States.

This unit could be filled in two ways, either by

sending chemists to Europe to study or by bringing chemists to this country to the University of Virginia, there to place with them four or five chemists to be trained by them under Dr. Small's direction. The latter plan was adopted, and with the cooperation of the United States Department of Labor the National Research Council brought to the University of Virginia Dr. Mosett and Dr. Burger from the laboratory of Professor Spaeth in Vienna. Dr. Small, Dr. Mosett, Dr. Burger and four chemists have been working at the University of Virginia for the past eighteen months on the synthesis and degradation of phenanthrene derivatives producing compounds of increasing complexity which resemble this nucleus of the morphine molecule in physiological function and in degradation compounds of the morphine molecule itself.

In order, however, to know what effect these compounds would produce, whether of value or of no value as substitutes for addiction-producing drugs, it was necessary also to have a unit which could test these chemical products in a systematic way for their biological action. Through the sympathetic cooperation of President Ruthven and the trustees of the University of Michigan, such a unit was arranged for in the department of pharmacology under the supervision of Professor Edmunds and Dr. Eddy. As soon as the chemical products are manufactured at the University of Virginia they are sent, with a report of their chemical composition and properties, to the University of Michigan where they are studied biologically and then reported upon. Both sets of reports are studied by the committee and the value of the substances determined. Some thirty new compounds have already been made at the University of Virginia and sent to the University of Michigan.

For such a plan of work there were various phases requiring the help of the United States government. This help and cooperation was freely granted by the United States Public Health Service under the direction of Surgeon-General Cumming and by the Narcotics Bureau under Commissioner Anslinger. Also two manufacturing houses rendered help by contributing rare chemicals for this study. These firms are Merck and Co. and Sharp and Dohme.

Preparatory to the setting up of the two units mentioned, the committee found it necessary to provide an analysis of the chemical literature of the morphine derivatives for the use of American students, especially for the use of the students in the laboratory for alkaloid chemistry at the University of Virginia. Dr. Small has prepared this for publication and the United States Public Health Service has agreed to publish it as a bulletin. A similar analysis of the literature of the biological action of morphine derivatives is being prepared for the use of the laboratory at the University of Michigan by Dr. R. A. Hatcher, professor of pharmacology at Cornell University Medical School.

Such analyses are necessary in order that the group of workers in each university may proceed with their problems without the necessity of individually spending their time studying the literature.

The second avenue of approach adopted by the committee that might prove of some assistance in the problem of drug addiction was to present accurate information concerning the necessary uses for which addiction-producing drugs should be employed. The committee felt that if it could present these necessary uses to the medical profession, with suggestions for the substitution of non-addiction drugs in cases where the latter would serve equally well, the use of addiction-producing drugs might be considerably reduced. Articles to present this information are being prepared by the American Medical Association in conjunction with the National Research Council by Dr. Fishbein and a group of skilled writers to be published in the *Journal of the American Medical Association.*

Graduate students interested in alkaloid chemistry or the physiological action of alkaloids will find opportunity for such study at the University of Virginia and the University of Michigan.

WM. CHARLES WHITE,
Chairman, Committee on Drug Addiction

AMERICAN SCHOOL OF PREHISTORIC RESEARCH

THE tenth annual session of the American School of Prehistoric Research opened in Paris on July 1, and closed in Prague on September 3. Twelve students—ten men and two women—all but two of them graduate students, were enrolled: Lloyd Cabot Briggs, Harvard University; Miss Jeanne Ernst, Mount Holyoke College; John P. Gillin, University of Wisconsin; Robert F. Greenlee, Northwestern University; Theodore D. McCown, University of California; Robert H. Merrill, University of Michigan; John Z. Miller, Lehigh University; Panchanan Mitra, Yale and the University of Calcutta; Cornelius B. Osgood, University of Chicago; Froehlich G. Rainey, University of Illinois; Miss Lucile Serrem, Columbia University; Sol Tax, University of Wisconsin. J. Townsend Russell, Jr., a former student of the school, assisted the director, who also had the assistance of two other former students after the group reached Czechoslovakia, *viz.*, V. J. Fewkes, of the