Letters to the Editor

Soviet Scientists

The newly founded Institute of the History of Natural Sciences, USSR, has announced a publication program including such journals as *History of Russian Natural Science, Outstanding Leaders of Russian Science, Great Contributors to Russian Science.* This trend in science reporting is apparently the result of the wartime success of the Russian scientific work underlying industrialization of the USSR. Through this, the interest of the world has been awakened, not only in current Russian research, but in earlier work which was insufficiently known to contemporary scientists outside Russia at the time it was being done and has only come to be recognized in the light of recent more familiar achievements in which it culminated.

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Thromboplastic Studies on Hemophilia

In an article by Moldavsky, Hasselbrook, and Cateno, entitled "Penicillin effect on blood coagulation" (*Science*, 1945, **102**, 38–40), the authors described some interesting findings, to wit: that after parenteral injections of penicillin in a series of patients under their care, there was noted a marked shortening in blood coagulation time after administration of that antibiotic drug. Inasmuch as we have been engaged in the study of various physical and chemical agents in respect to their thromboplastic action on the blood of both lower animals and human beings and were especially interested in the study of hemophilia, we have repeated the observations of Moldavsky, *et al.*, first on experimental animals and afterwards on hemophiliac patients. By courtesy of Dr. Howard Kern, chief of the Surgical Service, Sinai Hospital, we have confirmed Moldavsky's findings on normal-blooded clinical patients.

Employing Howell's method of studying coagulation time of whole blood, we found that injection of 2,000 to 5,000 oxford units of penicillin in medium-sized rabbits and cats produced definite shortening of coagulation time within two to three hours after administration of the drug, either by intravenous route or by intramuscular injection, thus corroborating the very valuable discovery of Moldavsky, *et al.* We have then made some studies, on two hemophiliac subjects, with intramuscular injections of penicillin. One of these subjects is a young man of 18 years, the other a man of 43 years, both of them having a normal coagulation time ranging from two to three hours.

To our great surprise we discovered that in neither subject was there noted any appreciable diminution in coagulation time after injections of quite massive doses of penicillin. One of the men received 50,000 oxford units, while the other subject was studied on two occasions, receiving 50,000 and 70,000 oxford units, respectively; in neither case was any effect produced on blood coagulation two and one-half hours after injection of the penicillin. In view of the clinical findings of Moldavsky, *et al.* on the one hand, and our own animal experiments on the other, these findings in hemophilia may be of interest in regard to its mechanism, which as yet remains an inadequately solved physiological problem.

We have, however, been much more successful in powerfully accelerating coagulation time of hemophiliac blood by means of suitable deep X-rays. The most efficient radiations in this respect were obtained by rays from 200-K.V. apparatus operating on 20 M.A. and passed through a composite filter of 2 mm. Cu at a target distance of 50 cm. Specimens of hemophiliac blood *in vitro* exposed to from 60 r to 80 r, clotted in one-half to one-third of the original time. Similar results *in vivo* were obtained in the two hemophiliacs mentioned above by giving them deep X-ray radiations over the splenic region. The thromboplastic effect of the irradiation persisted for as long as 10 days. A detailed report of these studies is to appear in the *Southern Medical Journal.*

Of interest also are experiments performed by us *in vitro* with certain snake venoms on hemophiliac blood. It is already known that the venom of Russell's viper (*Daboia*) hastens coagulation of such blood. We have found in addition that the venom of the South American viper (*Bothrops jararaca*) is equally efficacious in this respect. Both of these venoms *in vitro* in concentrations of 1: 100,000 to 1: 200,000 may produce a solid clot with hemophiliac blood in five minutes. Of course these venoms cannot be employed therapeutically by parenteral injection, but they may prove useful for local application.

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The Presumptive Identification of Antibiotics

In the field of antibiotics a problem exists, the solution of which would, we believe, benefit all those engaged in it. This problem concerns the presumptive identity or nonidentity of an antibiotic with one already reported in the literature.

The most satisfactory way of determining the nature of an unknown agent is to determine its physical and chemical properties and compare it with known agents. Unfortunately, for reasons well known to workers in antibiotics, it is frequently not feasible to do this. In the first place, the required data for comparison are rarely available. In the second place, the necessary purification may be extremely laborious. It is, moreover, of crucial interest to the investigator to determine the presumptive identity or nonidentity of his antibiotic *in a very early stage in the investigation.*