by the tide", and we must now seek some method of training the successors of those men who are the present leaders. A head can be a success only if he agrees to cease his work as an expert, after appointment.

Great Britain and the U.S.S.R.

THE British Association has received the following message in reply to a resolution recently forwarded through M. Maisky to the U.S.S.R. Academy of Sciences (see NATURE of August 2, p. 135): "The Academy of Sciences of the U.S.S.R. sends warmest greeting to the Committee for Social and International Relations of the British Association for the Advancement of Science. With the help of scientists of both our countries the united peoples of Great Britain and the Soviet Union will triumph in the war for the liberation of humanity from Fascist tyranny. Otto Schmidt, vice-president, Academy of Sciences of the U.S.S.R."

U.S.S.R. Academy of Sciences: Air Raid Damage

ACCORDING to the British United Press, it can now be revealed that German raiders recently set fire to the library of the U.S.S.R. Academy of Sciences, one of the most famous landmarks in the city. The fire was put out, however, before any of the three million valuable books in the library were destroyed. It may be recalled that the Germans, during the early raids on Moscow, boasted that the Academy of Sciences had been destroyed.

Black-out *v.* Controlled Lighting for Air-raid Defence

THERE has always been controversy upon this subject, and while Britain has adopted the complete black-out in this War, there is a considerable opinion held in the United States that some form of uniform lighting, to disguise landmarks, would be equally effective and less hampering to the inhabitants of the district. Experiments are being carried out, but the problem is not capable of any very precise solution, as the results are entirely dependent upon the personal estimation of the observers from the air. Even in an actual attack, the results of bombing depend upon so many variable factors that it would by no means follow that the concentrated bombing of a certain district was due to its ineffective concealment.

The principal arguments against a black-out are the impossibility of hiding rivers, railways and long, straight roads; fires and enemy agent signals are more obvious; dropping of flares effectively lights up at least a limited area. It adds to the difficulties of all forms of defence and A.R.P. work during an attack, and it hampers all work and social life as it is necessarily applied continuously, since it has been proved that it is impracticable to bring black-out into operation only when an attack is expected. It is claimed that a uniformly spread mantle of light would not make a town any more obvious, and could be made to disguise any particular object equally well.

The difficulty lies in obtaining uniformity, with the different classes of buildings, open spaces with no buildings or roads, and the irregular contour of the city that could be co-ordinated with a map. There is the further problem of enforcing that uniformity when it is attained. Watching the observance of a complete black-out is easier than seeing that a certain standard of illumination from windows, roof lights, etc., is not exceeded. Uniform lighting was used in London and certain other towns towards the latter part of the War of 1914–18, but this was introduced as an alternative to a black-out not nearly so completely worked out or rigidly enforced as the present one. There is also the wider problem of using individual towns as landmarks for navigating purposes. A series of lighted patches, indicating towns, could easily be followed successively with the aid of a map, and made to lead to any desired district. Uniformity of lighting in this respect could only be attained by illuminating the whole country-side—a task of gargantuan magnitude.

Fire Prevention in War-time

MANY of the subjects covered in a lecture delivered to the Royal Society of Arts by Colonel G. Symonds, fire adviser to the Home Office, are of more than general interest. After discussing questions of organization and the need for adequate fire-fighting parties to take immediate action, Colonel Symonds dealt with the 'protective levels' required for resisting penetration by a 1 kgm. incendiary bomb. The figures he gave were: reinforced concrete $2\frac{1}{2}$ in. thick; steel plate $\frac{3}{16}$ in. thick; a paving-stone 2 in. thick with a well-tamped standard sand-bag also gives adequate protection. As regards internal protection, floors can be made fire resisting with 2 in. of sand, $2\frac{1}{2}$ in. of brick rubble passing through $\frac{3}{8}$ in. mesh, or with material conforming to BSS/ARP 27. Less certain protection, but enough to enable a fire party arriving within five or six minutes to cope with the bomb, before floor boards started to burn, would be provided by BSS/ARP 47. Structural timber should be treated with a flame-resisting material. Communicated fire can be stopped by $2\frac{1}{2}$ inch jets supplied with 1,200 gallons of water a minute. Where an 80-ft. space is unobtainable as a fire break, windows facing a lesser gap should be bricked up, or failing this, protected with wired-glass and fire-resisting shutters. An unperforated 14-in. brick party wall with good mortar carried 10 ft. above floor-level on the line of the break will often stand up well to a 'near miss'.

Biochemistry at the Franklin Institute

THE Biochemical Research Foundation Laboratory (formerly the Cancer Research Laboratories), under the direction of Dr. Ellice McDonald, has recently moved from Philadelphia, Pa., to Newark, Delaware. The buildings at Newark are new and specially designed for the work of the Foundation. One wing insulated from the main rooms contains a cyclotron for preparing radioactive substances for use in medical and biochemical problems. The laboratories