

these problems. The second will cover three groups of men of science—chemists, physicists and biologists—and will be directed to discover the objective conditions of scientific employment and the attitude of men of science to scientific training and employment. These studies will cover the training for and obtaining of scientific posts, the conditions of scientific employment as well as the tenure of posts and incidence of unemployment. The studies on attitude will embrace attitude to university, to employment and to the main types of professional associations. It is hoped that the results obtained will provide data upon which policy for the regulation of the scientific profession can be based and also indicate how the practice of science in industrial firms affects the development of industry as well as possibilities in the application of science to industry.

#### Education in Germany

THE main features of education in Germany as remoulded under the Nazi regime are presented in a bulletin ("Education in Germany". Washington, D.C.: Government Printing Office, 1939) prepared for the United States Office of Education by Dr. Alina Lindgren, specialist in west European education, who visited Germany in 1935 and 1936 and completed her investigation of the subject a year ago. Among the most pregnant changes have been those in the education of teachers. Long before the Nazi party came into power its leaders resolved on a rapid unification of the teaching staffs and on eliminating teachers antagonistic to its views. The resultant limitation and precise definition of objectives must have been important factors in the production of a vigorous and efficient system. For teaching in elementary schools, candidates must enter two-year training colleges in which the curriculum includes three main fields: political world-view (*weltanschauliche*) education, scientific study and practical work. Entrance conditions include ability to sing and to play the violin, piano or organ and to instruct in gymnastics and sports. Women must in addition qualify in needlework and home economics. Aspirants to secondary school teaching posts must spend a year in one of these training colleges so as to mix with candidates for elementary school-teaching and so help to unify the profession. The declared purpose of the secondary school is to give preliminary training to especially gifted young people fit to qualify themselves eventually for authoritative positions in the political, cultural and economic life of the nation, and "the constant basis of selection shall be physical fitness, fitness as to character, mental fitness or ability, and national fitness". Conditions of study in the universities, which are subject to close control by the Reich Government, are elucidated by a comparison with the corresponding conditions in the United States.

#### Educational Finance in the U.S.A.

It has long been recognized in the United States that there are glaring inequalities between the educational opportunities available in different parts

of the country and that the systems of financing the public schools do not take sufficient account of the distribution of financial resources. The resources of many States being insufficient for remedying these inequalities, Federal aid has been invoked again and again in the past five-and-twenty years to correct defects in particular fields—first vocational education and later rural education, teacher training, health work in schools, nursery schools and adult education—but hitherto there has been no comprehensive measure for making good the radical defects in the systems of financing the public schools. The President's Advisory Committee on Education, constituted in 1936, with special reference in the first instance to vocational education, has lately taken this matter in hand, and a pamphlet on "Principles and Methods of Distributing Federal Aid for Education" has been prepared by its research staff (Supt. of Documents, Washington, D.C. 20 cents). It starts with the assumption, based on a study of present costs, that 48 dollars per pupil per annum is not more than enough to pay for elementary and secondary education of tolerable quality in a community enjoying optimum conditions of cost and is insufficient where sparsity of the population or high cost of living enhance the expensiveness of education. It proceeds to elaborate ingenious plans for distributing Federal aid, amounting to upwards of 600 million dollars a year, designed to approximate to the ideal—to each community according to its educational needs, from each according to its means.

#### Association for the Study of Systematics

THE Association for the Study of Systematics in Relation to General Biology was formed in 1937 (see NATURE, 141, 163; 1937: 142, 1069; 1938). Up to the present, the organization of the Association has been deliberately kept as loose as possible, and there has been no subscription. In a leaflet recently issued it is announced that the annual subscription is now five shillings. Further, a fund has been started to provide for expenditure on special purposes. Donors of £5 or more to this fund during the next three years will be designated founder members, and will enjoy for life the privileges of ordinary members. The leaflet also outlines the work so far carried out by the Association. It is hoped that all present members will continue on the new terms and that other biologists will find themselves in sympathy with the aims of the Association. Copies of the leaflet, with forms of application for membership, can be obtained from Mr. H. W. Parker, British Museum (Natural History), Cromwell Road, or from Mr. J. S. L. Gilmour, Royal Botanic Gardens, Kew, Surrey.

#### Blood Group Tables

THE rapid increase in the literature on blood groups makes it desirable to have a reference work on the subject. Dr. William C. Boyd has supplied this need (*Tabulae Biologicae*, 17, 113-240) by presenting the basic facts in tabular form with a minimal amount of text. All the essential facts

regarding blood groups are given, together with nearly 500 references to the literature. Part 1 is general, its nine sections including tabular treatment of the chemical and serological nature of the agglutinogens *A*, *B*, *M* and *N*; relations to other species; subgroups; heredity of the types; medico-legal applications; relation to disease; and blood groups in animals. Part 2 is anthropological, giving maps of the world distribution of the *A* and *B* and complete tables of the frequency of *A* and *B* as well as *M* and *N* in the various ethnic stocks tested in all parts of the world up to the time of publication. By the use of two kinds of type an attempt is made to distinguish between the more reliable results and those which, because of small numbers (less than 200) or for other reasons, are regarded as less reliable. This compilation of the serological and anthropological facts regarding the blood groups will be of much service to all workers who are interested in this subject.

#### Position of the Illegitimate Child

THE League of Nations has just published a "Study on the Legal Position of the Illegitimate Child" (London: George Allen and Unwin, Ltd., 1939. 4s.). The study opens with a short historical survey of the social aspects of the legislation on the subject in various countries, followed by an analysis of the various legislative provisions respecting civil status, name, nationality and legal domicile, and inheritance rights. The fate of the illegitimate child being closely bound up with that of its mother, a chapter on the unmarried mother's rights is included. The last part of the volume deals with social insurance laws, and welfare measures, including public assistance and preventive health measures.

#### Television Broadcasting

SIR NOEL ASHBRIDGE gives a review of the progress being made in broadcasting and television in the *Proceedings* of the Wireless Section of the Institution of Electrical Engineers of June. The period under review extends from the end of 1934 until the end of 1938. During this period the number of licence-holders in European countries has increased by more than 60 per cent. The details of the Royal tour in America in increasing the popularity of sound broadcasting have not yet been published, but it is known that the excellent broadcasts of sound and television have greatly increased the popularity of the British Broadcasting Company. The second part of Sir Noel's report deals exclusively with television broadcasting. The great improvements made in the quality of the pictures shown, the great trouble taken by the Government Post Office to locate the position and find out the cause of the interference, when complaints are made, and the remedies they suggest, in many cases completely eliminating the trouble, have satisfied the users in nearly every district. The nominal hours of transmission are now from 3 to 4 p.m.; and from 9 to 10 p.m. The vision transmitter and the studio and control room equipment at the Alexandra Palace Station have been

considerably improved; in particular, an improved type of 'Emitron' tube, known as the long-gun type, is now in use for studio work. It is now possible to obtain very satisfactory results with telephoto lenses. Satisfactory reception is possible up to a radius of about thirty miles from the Palace. In exceptional cases reception has been reported up to 200 miles. It is hoped that in the future international standardization with regard to definition and picture frequency may become available, as the absence of a common standard would be a most serious drawback.

#### A Factory without Windows

A DESCRIPTION is given in the *Electrical Review* of August 4 of a factory without any windows which is being constructed for the Simonds Saw and Steel Co. at Fitchburg, Mass., U.S.A. It is completely air-conditioned and artificially illuminated throughout. It concentrates productive machinery now covering 17½ acres in several plants, into 5½ acres of production space, from which daylight is completely excluded. Lighting fixtures are being installed in 1,440 positions. Each consists of a 100-watt lamp and a simple curved porcelain reflector. These produce an illumination of not less than 20 ft-candles throughout each room on the working plane. The Company plans to operate the new plant intensively on a three-shift basis, so that the work goes on continuously day and night. Service mains for water, gas, steam, power, light, air and oil are laid between the floors through ducts direct to more than 1,000 machines and furnace positions. The plant has a connected power load of 6,000 horsepower and a total of 4,200 electric outlets giving current for light, machine power, transformers, motor-generators and other units. Dust and exhaust gases are removed through underground ducts, served by thirty dust-removal units. The entire building is air-conditioned by Carrier units and the humidity and temperature controlled through hydrostats and thermostats at four special positions. 'Man-cooler' systems have been provided for the comfort of men working at the furnaces. Air will be circulated through the building at the rate of about 400,000 cub. ft. per minute. It enters the structure through louvres on the end walls of four lean-to buildings which adjoin the main building. Water is obtained from four artesian wells by electric pumping. Air is blown through water-sprays in each of these structures before being distributed.

#### The All-Welded Hull of H.M.S. *Seagull*

H.M.S. *Seagull* is one of the two minesweepers ordered to be built at Devonport Dockyard as part of the 1936 Naval programme. It was decided that *Seagull* should be built all-welded, whilst the sister ship *Leda* should be constructed in accordance with the normal practice, that is, mainly riveted. The occasion was to be utilized by obtaining a trustworthy comparison between the two methods of construction. So far as was practicable, the thicknesses of plating were left unaltered. The *Seagull* was launched on October 28, 1937, the launching weight