

differentiation of these implements, and from this has inferred a difference in racial origin.

#### The Cable Repair Ship H.M.T.S. *Monarch*

IN connexion with 'Telephone Week' (October 1-6), members of the general public had an opportunity of inspecting the Post Office cable repair ship *Monarch*, which was lying in the Thames off the Tower. This ship is fitted out with the special gear necessary for carrying out all the operations required in cable laying and repair, on which service she is at sea for most of the year attending to cables such as those laid between Great Britain and the Continent. The positions of cables are charted so that a faulty section or broken cable may be located and raised by means of grappling gear, of which there are various types provided. The ship's testing laboratory contains apparatus for the measurement of conductor resistance, insulation resistance, localisation of faults and other tests applied to the end of a cable which has been hauled on board. Sections of defective cables are replaced by lengths of new cable, a supply of which is carried in the ship, and the repaired cable relaid and charted, a somewhat noticeable feature of the cross Channel cables being the large number of repairs marked on the charts. The ship is provided with wireless equipment including a valve transmitter and, in reserve, a quenched-spark transmitter. In addition to an ordinary receiver there are a directional receiver and an emergency automatic call which rings an alarm bell, when the operator is not on watch, as soon as it responds to three 'longs', of four seconds duration, out of the twelve sent for the S O S signal. The chart house contains an echo sounding device. The ship's complement is 14 officers and 50 ratings, this large number being required on account of the technical duties, in addition to ordinary duties, carried out on board.

#### Telephone Statistics of the World

IN *Electrical Communication* of July the telephone and telegraph statistics of the world have been published up to January 1933. The United States have now 53 per cent of the total number of telephones in use in the world, Canada has 4 per cent, Germany 9 per cent, Great Britain 6.5 per cent, France 4 per cent, the remaining European countries 14 per cent and all other countries 9 per cent. In January 1928, the United States had 60 per cent and Europe 28 per cent as compared with 33.5 per cent now. Whilst the number of telephones in Europe has increased by about 20 per cent during those five years, the number in the United States has diminished by 12 per cent. San Francisco leads the world with 36.5 telephones per 100 of the population and Washington comes next with 33.3. Stockholm is third with 31.8. In Canada, Toronto has 25.6 and Vancouver 28.1. Paris has 15, Berlin 11.1 and Munich 10. London heads the cities in Great Britain with 8.8 and Edinburgh comes next with 6.9. Honolulu, with a population of 138,000, has 11.7 telephones per 100. Whilst the United States have 70 miles of telephone wire per 100 of the population, Canada has 48, Australia and New Zealand 39, Sweden has

32.7 and Denmark 31.5. Germany has 23.2, Great Britain and Northern Ireland 22.6 and France 10.7. India and China have only 0.11 miles of telephone wire per 100 of the population. Czechoslovakia, the United States and New Zealand use their telephones more than other countries. The telephone conversations per capita in these three countries in 1932 were 224.5, 204.6 and 205.8 respectively. This compares with 33 in Britain and Germany and 20.5 in France. The number of conversations by telephone now averages about 100 times as many as of communications sent by telegraph.

#### Social Sciences in the United States

THE social sciences and, especially, applied social science or civics, figure prominently in discussions of current educational policies in the United States, as witness the monthly *Educational Review* published as a supplement to *School and Society* of July 7. An advanced school of thought has lately found an exponent in Richard Welling, whose "Civics as it should be taught" has provoked discussion about the courage needed by teachers to teach "the real facts about distorted democracy", and led to a proposal to form a union to teach civic truth and to protect anyone who does it. A new monthly journal of educational criticism and reconstruction is to appear this month under the name of the *Social Frontier* (2 dollars annually, 66 West 88th Street, New York) to be devoted to "serving the emerging consciousness among American teachers that they must participate fully in social processes reshaping the American order". The report of the American Historical Association's commission on the social studies has, after repeated revisions, reached its final form, a compromise between conflicting views (New York: Charles Scribner's Sons. 170 pp., 1.25 dollars). It calls for increased emphasis on social instruction from the kindergarten upward and extending to the adult population, and it stresses the need for a more realistic approach with frequent interpolation of the question: How is it in your own town, city, country? The principal article in the same issue, entitled "Cultural Objectives of Health Education" by the professor of public health, Yale School of Medicine, urges that teachers should bear in mind that they are educating citizens and not merely doctors or lawyers or farmers, or stenographers or salesmen or bank presidents.

#### Research in Industrial Health

THE fourteenth annual report of the Industrial Health Research Board up to June 30 emphasises, as have previous reports, that, "the study of the physiology and psychology of the worker is to reveal as many problems as are solved: to the fundamental problems becomes added that of overcoming difficulties in methods of approach and in technique". Trustworthy data about the incidence and kind of ill-health from which the workers in different occupations suffer are a pressing need. In the introduction to the report is a discussion of some of the difficulties in the way of obtaining data. An account of the chief problems now being investigated is given in outline.

Among the environmental conditions are lighting, noise, dust, heating and ventilation, the relation of warmth to comfort, and a special study of infra-red rays and comfort. Under the main heading of the physiology and psychology of work are mentioned an extensive survey of the physique of men in different industrial occupations, a study of incentives in repetition processes, sickness absenteeism and labour wastage, vocational suitability with special reference to accident proneness, and a study undertaken in co-operation with the Ministry of Labour dealing with the factors involved in employability among boys. In the conclusion it is pointed out that while there are signs of the practical application of much of the knowledge obtained by the Board, yet much more use could be made of the available knowledge, and also that many more problems remain to be investigated.

#### The Educational Machine

DR. JOHN MURRAY, in an article in the *Hibbert Journal* (32, No. 4), suggests that education is nowadays disliked not by children or teachers but by an increasing number of people outside the schools. The most dangerous of these are the materialists who think that education is too expensive, and in any event of doubtful value. Then there are the people in a hurry, who either want the children to start earning early or to learn their craft at school. Dr. Murray thinks that technical training is given better in the workshop than in the school, and that it is unfair to blame our present academic system until the generation it is training has reached middle age. Education to-day is unpopular also with those who dislike the educational machine—which is certainly cumbersome and in need of criticism—and with those who value character more highly than intelligence, and deplore the modern emphasis on interest rather than discipline. Finally, education is blamed for all those qualities which old people dislike in the young: but, as Dr. Murray points out, the 'bright young people' have existed in all ages and their energy is the motive power of society. Earlier marriage, rather than less education, would remedy their stability.

#### Reproduction of Graphs

FROM time to time, reference has been made to the fact that section paper ruled black is not a stock article, and that such paper would be advantageous for the preparation of graphs for reproduction as lantern slides or by printing. Mr. W. A. Young, who discussed the preparation of illustrations for a paper (*Proc. Inst. Heat. and Vent. Eng.*, 8, 79 and 127; 1907), records that as black was unobtainable he procured—not without difficulty—some paper ruled in red, but he found that it did not reproduce properly and concluded that the only satisfactory method was to trace a plotted curve, squares and all, in Indian ink. Mr. M. E. J. Gheury de Bray, First Avenue House, High Holborn, London, W.C.1, informs us that, being unable to obtain black ruled section paper, he has undertaken its production himself and can now supply it on paper and on card. Mr. A. F.

Duften, Greenbank, Garston, Hertfordshire, referring to this question, points out that "section paper ruled yellow is admirably suitable for reproduction. When photographed on a process plate, yellow reproduces like a full black. Paper ruled yellow, moreover, can be obtained without difficulty. It may perhaps be pointed out that an ordinary graph is not usually suitable for reproduction as it stands. The co-ordinate grille, printed in yellow, blue or green, appears as a mere background upon which black lines stand out boldly, but when reproduced in black it becomes unduly prominent. For reproduction, therefore, a graph should be drawn upon a grille of as coarse a mesh as practicable".

#### Forestry in Italy

IN *Forestry* of June 1934 is an article entitled "The Fascist Government and the Restoration of Italian Forests" by Prof. Aldo Pavari, director of the Royal Experimental Station for Sylviculture, Florence. Prof. Pavari deals with the forest problems in Italy, Italian forestry policy from 1887 to the march on Rome in 1922, Fascist forest legislation, the National Trust militia and instruction and experimental work in forestry. Of the total area of Italy, 31 million hectares, only a little more than 2½ million hectares are unproductive, that is, water, roads, buildings, sterile mountain slopes and crests, etc. Of the remainder, about 53.8 per cent is under agriculture, 26.7 per cent is pasture land of varying quality and 19.5 per cent, or 5½ million hectares, is covered by forest. These area totals are of importance in a mountainous country like Italy, which has vast areas subject to erosion as a result of the geological formation, whilst having at the same time an irregularly distributed rainfall. A general survey of soil conditions in Italy shows that, while the plains are intensively cultivated and the hills fertile, with vineyards, olives and other tree crops, the mountains have scarcely any woods and are generally in a low state of productivity. The so-called 'productive mountain pastures' are often nothing more than coppices, where constant grazing leads to progressive degradation and erosion of the soil, and thus the importance of erosion and floods increases from year to year with tragic consequences for the mountains themselves as well as for the hills below, leading to a constant destruction of the nation's resources and wealth. The measures by which the Duce proposes to improve the existing state of affairs are explained by the following three clauses of the Fascist Forest Legislation: "(a) To secure and defend the stability of the soil and the regularity of the water supply. (b) To aid the development of a rural economy in the mountain districts by encouraging sylviculture and the improvement of mountain fields and pastures. (c) To co-ordinate the whole complex action of the amelioration of the mountain districts with the reclamation of the hills and the plains".

#### The 'Isolated Basins' Electricity Scheme, Upper Egypt

EGYPT has a population of about 15 millions, and for the most part they are dependent on the land for their livelihood. The intensive development of the