

The average size of certain important fishes, for example, plaice, soles and haddocks, in the North Sea landings has been materially—perhaps even alarmingly—reduced. In other words, an increased proportion of the catches now consists of small fish. For full details of this and other changes in the nature of the landings the reader must consult the tables as set out *in extenso* in the Bulletin. But certain important details concerning the North Sea plaice may be usefully included here.

It is now generally known that the percentage of small plaice landed in England fell rapidly during the Great War. From 45–50 per cent in the immediate pre-War years, it dropped to 24 per cent in 1915 and even fell so low as 7 per cent in 1919. After that year, it rose again, and has kept a steady average of about 70 per cent from 1925 onwards. Thus, during the War and for several years afterwards, the English market was supplied with plaice larger on an average than either before or afterwards. Temporary abandonment of 'small fish' grounds is not regarded by the compiler of the Bulletin as a satisfactory explanation of this; nor does he regard with favour the more usual suggestion that the North Sea plaice had a respite from too intensive fishing during the War so that a larger number lived longer, grew bigger and eventually came into the market until the accumulation dwindled. On this point, attention is directed to the significant fact that, in England, the proportion of small plaice began to fall in the year 1914, before any great restriction of fishing grounds had taken place and long before the fish on any closed area had had time to grow. It is interesting to note that the haddock showed no sign of any post-War period of comparatively large fish, that is, there was no benefit from partial closure of the North Sea grounds.

With regard to the other plaice-producing countries, we find that in the seven years 1907–13 the mean percentage of small plaice was 47 per cent in England; 83 per cent in Germany; 87 per cent in Holland. In the seven years 1927–33 the corresponding figures are given as 74 per cent, 90 per cent and 95 per cent. Whatever be its cause or causes, this great increase in the percentage of small plaice—and other fishes—in the North Sea catches is a phenomenon the effect of which on the future of the fisheries of Great Britain and other countries seems likely to be of extreme importance.

### Uplift Pressure on Dams

WHEN a dam is built on porous strata such as generally exist at the beds of rivers, there is a flow through these porous strata under the masonry from the upstream to the downstream side. Accompanying this, there will be a pressure acting upwards on the masonry floor. An accurate knowledge of this uplift pressure and of the nature of its distribution is of fundamental importance for the purpose of designing a dam. There have been many attempts to investigate by direct measurements from models the way in which this pressure varies with different forms of design.

The usual method of building a tank provided with holes for manometers and filled with sand to represent the subsoil strata and of arranging a model of the dam with a suitable head of water upstream involves a very large number of readings, and is most laborious. Observing the analogy between Ohm's law for the

conduction of electricity and Darcy's law for the conduction of water through porous media, N. N. Pavlovsky in 1921 suggested that an electrical method could be employed for studying the subsoil pressures under dams (Proceedings of the International Congress on Dams, 1933). In a paper to the Indian Academy of Sciences (*Proc.*, 2, No. 1, July 1935), Mr. G. Ram, Dr. V. I. Vaidhianathan and Dr. E. McKenzie Taylor, of the Irrigation Research Institute, Lahore, have described their investigations and the methods and apparatus used in determining to what extent this suggestion could be made the basis of a successful attack on the problem of subsoil flow under dams.

In the several cases examined of simple impervious floors with and without sheet piling, the curves obtained by the direct and the indirect methods and by theoretical calculations agreed so closely as to give support to the claim of the authors that the indirect electrical method is trustworthy. They consider that earlier failures have been due to faulty technique, and assert that the fact that the potential distribution in conductors has been shown to be of the same form as the pressure distribution in the subsoil under dams, establishes the mathematical foundation for designs of these works, and, as such, should be considered a great advance on our existing knowledge.

### Educational Topics and Events

**BIRMINGHAM.**—The Poynting chair of physics, which will be vacated by the retirement at the end of the present session of Prof. S. W. J. Smith, is to be filled by the appointment of Dr. M. L. Oliphant, assistant director of research in physics at the Cavendish Laboratory, Cambridge.

Mr. J. W. Drinkwater has been appointed lecturer in mechanical engineering.

**CAMBRIDGE.**—C. H. Thompson, Queens' College, has been appointed Gurney lecturer in forestry, and J. H. Lockhead, Christ's College, University demonstrator in zoology.

In its annual report, the Committee of Management of the Scott Polar Research Institute states that the Oxford University Expedition to North East Land before its departure, and the Oxford University Ellesmere Land Expedition 1934–35, since its return, have both made use of the facilities of the Institute, which have also been of service to the forthcoming Cambridge expeditions to Iceland, members of which have been at work for some time in the library and map room.

**DURHAM.**—At the Convocation to be held on June 30, the honorary degree of D.Sc. will be conferred on Mr. G. S. Baker, superintendent of the William Froude Laboratory at the National Physical Laboratory, and the honorary degree of D.Litt. on Mr. Robert Steele, editor of the works of Roger Bacon and other medieval literature.

**OXFORD.**—On June 6, the honorary degree of D.Litt. was conferred on Mr. E. A. Lowe, University reader in palaeography. At Encænna on June 24, the honorary degree of D.Sc. will be conferred on Prof. E. D. Adrian, Foulerton research professor of the Royal Society. Among those who will then receive honorary degrees of D.C.L. are Prof. Gilbert Murray and Mr. Anthony Eden.



It is stated that some two thousand people representing fifty different countries will be present at the Seventh World Conference of the New Education Fellowship to be held at Cheltenham on July 31–August 14, under the presidency of Sir Percy Nunn. The theme of the Conference will be "Education and a Free Society". One main lecture will be delivered each day and translated from French into English or vice versa; the same evening the lecture will be discussed in a symposium, to which educationists from different lands will contribute. During the first week, the Conference will consider "The Individual and Freedom" and during the second, "Human Relationships and Freedom". Particulars can be obtained from Miss Clare Soper, 29 Tavistock Square, London, W.C.1.

RESEARCH studies in education occupy some thousands of university graduates every year in the United States. A bibliography published by the Office of Education, Washington, as Bulletin No. 5 of 1935 (pp. 328, price 25 cents) lists 3,506 such studies reported in 1933–34, including 465 doctors' dissertations, 2,763 masters' theses and 274 studies reported as faculty research. Many of them deal with topics of current controversies: special taxation for support of schools, equalisation of educational opportunity, emergency feeding, emergency schools, effects of the depression, child-labour and unemployment, the new systems of education in Italy, U.S.S.R., Greece and Germany, Federal emergency relief and leisure-time activities. The Office of Education has in its library a collection of 1,811 of these studies, which is said to be in constant use both in Washington and, through inter-library loans, throughout the country.

## Science News a Century Ago

### William Radcliffe and the Textile Industry

WILLIAM RADCLIFFE (1760–1841) was one of the improvers of cotton machinery who failed to reap any reward for his work. He died in poverty in 1841. *The Times* of June 14, 1836, contained the following quotation from *Blackwood's Magazine* regarding him: "The power-loom system, commonly so known, ought to be called the Radcliffe system. Without the dressing machine invented by Mr. William Radcliffe, of Stockport, the power loom was utterly worthless, except as a piece of curious mechanism. That of Dr. Cartwright has never been other than useless; yet he obtained a grant from Parliament of £10,000 for the invention. Mr. Samuel Crompton, for his splendid discovery of the spinning mule, received the niggardly award of £5,000 from the same source; but Mr. Radcliffe was beggared by his inventions. His patents were invaded by a joint-stock purse combination; and he himself, from a prosperous manufacturer, brought to bankruptcy through expenses, time, and labour lavished upon his valuable inventions. . . ."

### Ventilation at the Custom House

At the last ordinary meeting of the session of the Royal Society held on June 16, 1836, twenty communications were made. Among the subjects dealt with were the tides, magnetic observations, the respiration of insects, the human voice, the fermentation of vegetable matter, voltaic batteries and heating and ventilating. After the meeting, the Society adjourned for the long vacation to meet again on November 17.

The paper on warming and ventilating apartments was by Dr. Andrew Ure (1778–1857), then an analytical chemist in London. He had, he said, been consulted by the directors of the Customs Fund of Life Assurance, on the mode of ventilating the Long Room in the Custom House. In this room, about two hundred persons were employed. All these persons were found to suffer more or less from ailments of the same general character, the leading symptoms of which were a sense of fulness and tension in the head, throbbing of the temples, giddiness and occasional confusion of ideas, depriving them of the power of discharging their duties, in which important and frequently intricate calculations were required. Dr. Ure examined the condition of the air in the room, and said that: "In all these qualities the air respired by the inmates of the room bears a close resemblance to the pestilential blasts of wind, which, having passed over the scorching deserts of Arabia and Africa constitutes the *Simoom* of those regions, and is well known by its injurious effects on animal and vegetable life."

Dr. Ure expressed surprise that in the report of the Parliamentary Committee on Ventilation, no reference had been made to the methods employed in factories, although they afford the best models for imitation, being the results of innumerable experiments made on a magnificent scale, with all the lights of science and all the resources of the ablest engineers. He showed that the ventilation effect of a steam-driven fan was thirty-eight times greater than the effect produced by a fire using the same amount of coal.

### Reform of Medical Education

In *The Times* of June 16, 1836, a letter appeared from "M. D.", the object of which, he said, was to direct attention "to a subject which I am quite sure will be acknowledged by every medical practitioner in the kingdom to be of the first importance to the community. . . . I allude to the unprotected state of the obstetric department, a branch of medicine practiced by males and females without any responsibility, and by too many who are perfectly ignorant, or who possess a superficial knowledge only, of the important duties which they are often called upon to perform. . . . At the present moment, there is not even the form of an examination by either of the English medical corporate bodies into the acquirements of either male or female practitioners. This, Sir, is a simple statement of a monstrous anomaly which exists in the medical profession."

### The Sussex Scientific and Literary Institution

ON June 18, 1836, the *Athenæum* published a note from a correspondent regarding the above institution, which he said "owes its existence to the exertions of Mr. Ricardo, Mr. Horace Smith, Sir Richard Hunter, and a few other gentlemen, who originated a plan for the admission of the public to Dr. Mantell's Museum of Geology and Comparative Anatomy. . . . Reading rooms are opened for the members; the formation of a library is commenced; and the unique collection of organic remains, belonging to Dr. Mantell, are exhibited in these rooms and arranged with great taste. Dr. Mantell has given three lectures in the Town Hall on behalf of the Institution; and a short time since, a geological excursion to Lewes took place, under his guidance, and he conducted the members to the quarries, which had afforded many of the interesting organic remains in the Museum."