

equal to  $n$  decibels above the zero, its loudness level is declared to be  $n$  phons. If, further, the reference tone has been regulated so that, as heard by an average ear under specified conditions, its loudness is assessed as equalling that of some other sound or noise, then the equivalent loudness of the latter is also declared to be  $n$  phons.

In this way we overcome the difficulty that energy and loudness do not necessarily keep in step when the frequency is changed; and so, through the intermediary of a device akin to the standard candle of the photometrician, we can link the phon level with the decibel level, which latter is measurable by physical instruments called noise meters. Mr. L. S. Lloyd, feeling that all this is too difficult for a musician to comprehend, has based a simple explanation of it on the parallelism of the decibel to the musical interval of a major third ( $5/4$ ) and has published it in an attractively written pamphlet. ("Decibels and Phons. A Musical Analogy. London": Oxford University Press. 1s. 6d. net). The major third can naturally serve as an increment to build up a scale of pitch which is of course no less a logarithmic scale than any other musical scale, such as that of the more familiar octave. To interpret pitch as intensity apparently comes naturally to a race of selectively gifted 'monsters' whom the author amusingly creates for his purpose. Even those to whom the analogy may seem somewhat circuitous, will find the treatment pleasant reading, while there will, no doubt, be others, besides 'monsters' and musicians, to whom Mr. Lloyd's method of approach will commend itself.

#### Science and the Welfare of Animals

A SCIENTIFIC Investigations Committee has been formed by ULAWS (University of London Animal Welfare Society), which is in the course of being incorporated into the newly formed Universities Federation for Animal Welfare. The committee will concern itself with the acquisition of knowledge calculated to benefit animals in their own interests as distinct from the interests of the human species. Its functions will be to define problems for inquiry, to advise as to the allocation of funds for the purpose, and to collect and communicate any new knowledge which may be of value for increasing the well-being or diminishing the sufferings of animals. A small grant has been made in aid of an ecological investigation relevant to the control of wild populations, which is frequently carried out by methods considered by many to be inhumane. Among the other topics in which the committee is interested are the widespread failure to utilize existing knowledge of dietetic principles; the problem of bait poisons the destruction of sea-birds by oil waste; and the use of an electric goad as a substitute for the stick in droving cattle. The members of the committee are: Capt. C. W. Hume (chairman), Dr. S. Graham Brade-Birks (hon. secretary), Dr. Paul Haas, Mr. H. R. Hewer and Dr. W. R. Wooldridge. Men of science who are in sympathy with the objects of the committee are invited to communicate with Dr.

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#### London Scientific Film Society

THE proposed formation of a scientific film society, which would give shows of scientific documentary films to its members and their guests, was announced in NATURE of June 4. Such a society has now been formed, under the name of the London Scientific Film Society, and its inaugural meeting was held on October 14 at the Conway Hall. At the meeting Mr. L. V. Chilton explained how the formation of the Society was a direct result of the work of the Association of Scientific Workers on scientific films. One of the functions of the Association is the promotion of a proper understanding of science by the general public, and of what science can do for society; the Association is therefore interested in the teaching of science and in the proper treatment of science on the screen. Mr. Arthur Elton referred to the London Film Society, which was formed eleven years ago and has had a broadening influence on the aesthetic film. He said that if the London Scientific Film Society is to be successful, it must reveal to the public both the achievements of science and the potentialities of the scientific documentary film. Such a society can do much to raise the standard of scientific accuracy of the films shown in public cinemas, and also to increase the number of scientific films shown. The first show of the Society will be held at 2.30 p.m. on Sunday, November 13, at the Academy Cinema. Particulars of the Society and forms of application for membership can be obtained from the Secretary at 28 Hogarth Road, S.W.5.

#### Faiths and World Fellowship

THE World Congress of Faiths was founded several years ago by Sir Francis Younghusband to promote a spirit of fellowship among mankind through religion. The object of the organization is to awaken and develop a world-loyalty, while allowing full play for the diversity of men, nations and faiths. There have been three congresses, in London, Oxford and Cambridge respectively in 1936, 1937 and 1938; and the proceedings have been published in volumes obtainable from the Secretary, World Congress of Faiths, 36 Victoria Street, London, S.W.1. Owing to the tension in the international situation, the committee of the Congress has decided to postpone the holding of the next congress at the American University, Beirut, and arrangements are being made for the 1939 Congress to be held in Paris. A meeting will be held in the Kensington Town Hall at 8.30 p.m. on October 31, at which Lord Gorell will take the chair, and Hindu, Jewish, Muslim and Christian speakers will deliver addresses on "The Crisis: through Faiths to Fellowship".

#### Air-Raid Precautions

Two publications recently issued by the British Steelwork Association, Steel House, Tothill Street, London, S.W.1, are of permanent value, although happily the international crisis is over. The first of

these, entitled "Steel for A.R.P.", suggests ways in which standardized steel products can be used for air-raid protection. One of these standard products is corrugated steel sheets and it can be used for overhead cover. Similarly the steel arches used to support the roadways of collieries are applicable to construct shelters in basements, railway embankments and cuttings. The booklet dwells on the advantages of steel frame construction from the point of view of its ability to resist explosive shock. These frames withstand stresses in any direction. A frame is not dependent for its strength upon the walls, and it can easily be repaired. Various types of wall and floor construction are described and so also are the customary brick panels. The latter are considered to be able to deal with blast and splinters when well tied up to the supporting structure. The use of pressed-steel window sub-frames can increase their strength. In existing buildings the most appropriate site for a shelter is the basement, and some useful hints are given of the best way of using existing steel products to strengthen it. The second book deals with the "Everyman" trench shelter, and will be of interest to many. It describes with the help of drawings how a householder can build a shelter capable of holding four persons and sufficient to afford protection against blast and splinters. For the roof curved sheets five feet long are used and standard flat corrugated iron sheets six feet long for lining the walls. A bill of the quantities required is given. It has been suggested that now that time is not important, there will be many who will consider it worth while to build such a shelter in their leisure hours. As the roof will be covered with the excavated soil, it might be sown or planted in such a way that the amenities of the garden would not greatly suffer.

#### Protecting Airships Against Fire

SOME of the problems that have to be solved when protecting airships against fire, due to electric sparks in the neighbourhood of free hydrogen, are discussed in an article in *The Times* of October 18. The latest German airship, the LZ 130, which inherits the name of *Graf Zeppelin*, is denied the use of helium, and so uses hydrogen gas. Dr. Hugo Eckener and his colleagues are engaged in experiments during flight to test a project for making the potential of the static electricity within the airship frame equal to that of the electrical field outside. The experiments are based on the use of a new instrument which records the nature and intensity of the static charge in the airship and of the electrical conditions in the atmosphere surrounding the hull. Its function appears to be that of warning the captain of conditions in which it would be dangerous to 'valve' gas or to have an appreciable leak of gas. There is little danger even when the aircraft passes through a field of opposite charge, unless there is a gap in the bonded structure across which a spark may jump. If the new instrument works satisfactorily, it would give a warning when the conditions were dangerous and special precautions could be taken. It would enable the captain to see whether or not it was desirable to

earth a positive charge when in the neighbourhood of a negatively charged cloud. Such stations have been made in miniature and experiments on a small scale have been carried out. Experiments will shortly be made in full scale under natural conditions.

#### Excavation of a Neolithic Barrow in Kent

SIR EDMUND DAVIS'S excavation of Julaber's Grave, Chilham Hill, Kent, under the direction of Mr. R. F. Jesup, in continuation of the investigations of 1937, after a brief interruption during the recent crisis, owing to the absence of the director, has been brought to a close, after being carried to a point at which it was proved conclusively that the barrow is of neolithic age. Reports of the result of the excavation (*The Times*, October 1 and 12), state that a polished flint axe, about six inches long, with flattened sides, curved edge, and made of creamy white flint, was found in a layer at a depth of four feet six inches, in which were also rough sherds, a human tooth, pointing to a burial, and a number of flint flakes, such as are found only in the area of the mound in the adjacent cultivated soil. Traces of charcoal in the core of the mound, particularly in the neolithic turf layer, support the theory that the area was cleared by burning. The polished flint axe, which substantiates the neolithic dating of the mound, is of Scandinavian type, and, it is suggested, allies the mound with the megalith builders of the Baltic, rather than with the long barrow peoples of Dorset and Wiltshire. It is certainly significant that, as the report points out, Julaber's Grave, in relation to the other long barrows of Britain, stands in a position of isolation. Further investigation of the Roman burial containing the skeletal remains of three individuals, which was found in 1937, has revealed a remarkable, and at first sight puzzling, construction of flint at the southern end of the grave. This has proved to cover the burial of a man and a horse. The head of the horse, however, is missing, and the usual platter and bowl are in fragments. Apparently the burial had been disturbed; while the flint structure had been placed there to prevent the remains, buried in the side of the mound, from slipping into the ditch.

#### Reduction of Maternal Mortality

THE Minister of Health has communicated with local supervising authorities on methods that may be adopted in order to secure that the best obstetric aid is available to expectant mothers on occasions when midwives have to call in a doctor (Ministry of Health Circular 1705. H.M. Stationery Office. 1d. net). The recommendations are that a panel of doctors who will be available for this service should be drawn up for the area of each authority, and that a small advisory committee should be set up to advise the authority in regard to the operation of the arrangements and on any alteration that may be deemed necessary in order to secure and maintain a high standard of obstetric practice. It is hoped that the adoption of arrangements on these lines will help in reducing the present maternal mortality rate.