

hence the many weeks of anxiety as to their fate. Details of the flight are awaited with interest, since the route was across the unexplored Hearst Land and presumably over the unknown extension of the Queen Maud Ranges.

Jubilee of the Aga Khan

IN the celebration of the jubilee of the Aga Khan on January 19 and four succeeding days in Bombay, one of the most striking incidents, perhaps for its incongruity, has been the assessment of the tribute from his followers to mark the occasion by the ceremonial of weighing His Highness against bars of gold in a huge balance. This is the usual method by which the contributions to his personal expenditure are determined annually; but, on this occasion, the £25,125 representing the value of the weight of gold at which he 'tipped the balance' is to be devoted by his decision to the benefit of his community. By his activities in Europe the Aga Khan has become so intimately known to the public that the significance of his position in India is sometimes overlooked. Without territory, as hereditary Imam of the Ismailia sect, he is spiritual head and virtual dictator to a body variously estimated at from four to twenty millions, and distributed over north and east Africa, Central Asia, India and Burma. Although the Ismailia sect is regarded as heretical by both Sunni and Shiah, from the latter of whom it originally derived, in India the Aga Khan by his personal qualities, his influence and his services, has come to be regarded as in some sort the representative of the Moslem community. His hereditary position and influence are derived not so much from his descent from the Prophet, as from the fact that he is of the line of the "Old Man of the Mountains", the legendary figure of the Middle Ages, by whom the Ismailia sect was founded, and whose fanatical followers, the Assassins, were said to be devoted to his service through the use of hashish, whence their name. The leaders of the Ismailia dominated Syria in the twelfth century until overcome by the Mongols. They then settled in Persia, the grandfather of the Aga Khan going to Bombay in 1845.

Cave Exploration in South Australia

A REMARKABLE series of discoveries made in the course of cave exploration in South Australia is described by the Adelaide correspondent of *The Times* in the issue of January 16. The caves are situated in the Nullarbour Plain, which itself is not the least remarkable feature in the geography of South Australia. It is a treeless expanse of some 38,000 square miles in extent, which has made a deep impression even on the imagination of the aborigines; for it figures prominently in their legendary lore, one belief being that it is the home of an immense serpent, which devours human beings who enter its province. At different times a number of attempts have been made to explore the caves of the Plain, but without marked success. The present expedition was carried out by a party of nine, of whom the leader was Capt. Maitland Thompson of

Port Lincoln. It started from Ceduna in November last. A number of caves were examined, of which the most impressive was the Koonalda Cave, situated sixty miles from Eucla. The entrance was in an almost vertical shaft and was reached by ladder. Passing through a chamber eight hundred feet in circumference, the exploring party penetrated for more than half a mile to a narrow passage leading to a subterranean well fifty feet in diameter; while another tunnel was followed to a distance of 2,400 ft. from the entrance until the passage forked and further progress was blocked by water. An interesting piece of evidence of previous penetration was found near the well in the form of an impression in the sand of the foot of an aboriginal.

IN the Weebubble Cave, a canoe, which the party had brought with them, came into use and after effecting an entry to a circular entrance hole three hundred feet across in the face of an eighty foot cliff, a tunnel was followed until a vast room, of which the back wall was four hundred yards from the entrance, was reached. Here the water, 320 ft. below the surface, was at the level of the sea fourteen miles away. The lake was found to have a depth of twenty feet at the edge and more than two hundred feet at the centre. An interesting piece of evidence of the attitude of the aborigines towards these remarkable caves was found at the Murrawidginie Cave, where at the entrance were a number of imprints of the human hand (usually the left) in red on the surface of the rock, which was also daubed or stained with red ochre. The practice of the Australian aboriginal of leaving the imprint of his hand on a rock surface has been recorded from numerous districts on the continent and is a custom which he shares with the Bushman and palæolithic man of Europe. Frequently the fingers show mutilations. Various explanations of the custom have been offered, and it may be that in the present instance it is correctly interpreted as a taboo sign, especially as it is believed that the cave may have been used as a store-house for the churingas and other emblems which were used in tribal ceremonial. Among other caves explored was the Abrakurrie Cave, where a drop of 250 ft. led to a cavern 1,200 ft. long, 160 ft. wide and 150 ft. high. It is proposed to follow this very successful exploration with further investigations, the next immediate objective being a search for the caverns known as "The Catacombs", of which the situation, frequently sought, appears to have been established by a recent aerial reconnaissance.

Association of British Zoologists

THE annual meeting of the Association of British Zoologists was held in the rooms of the Zoological Society on Saturday, January 4, Prof. J. S. Huxley being in the chair. At the previous meeting the Association had appointed a committee to inquire into any means which could be devised to lessen the confusion at present caused by frequent changes in the scientific names of animals, and especially of the common species used in schools and universities as

types for teaching and experiment. Mr. H. R. Hewer, secretary of the Association, read the report of this committee. A list of the names accepted at present as correct for a large number of animals has been prepared, and it is hoped to publish this list in the near future. Prof. J. W. Munro, of the Imperial College of Science, opened a discussion on the extent of the opportunities which are at present available to junior members of the staffs of the universities for carrying on individual research. Dr. B. Dawes, Mr. C. C. Hentschell, Dr. E. B. Worthington and others spoke on this subject. It was the general view that, so long as promotion in the universities is made to depend, as it so often is at present, on the results of research, the members of the staffs should be given more opportunities for carrying out this research. Either increase in the number of the staffs, or provision of research grants for members of the teaching staff by which they could be released from teaching duties in whole or in part for short periods, would ease the position. A third discussion was held on the conditions under which consultant work in zoology is being carried on. Such work has considerably increased in recent years in spite of the existence of several institutions provided by the Government for the study of problems in economic zoology. Dr. J. C. F. Fryer of the Ministry of Agriculture, Dr. R. C. Fisher of the Forest Products Research Laboratory, Princes Risborough, and Mr. H. R. Hewer spoke in this discussion, and the Council of the Association was asked to make inquiries whether it would be possible to prepare a list of recognised zoologists qualified to give advice on these matters.

Science and Values

In his retiring presidential address to the American Association for the Advancement of Science delivered at St. Louis on December 30, Prof. E. L. Thorndike, under the title "Science and Values", discussed the psychology of values in its relation to the competence of science to improve the judgments of value and esteem which rule men, and the possible contribution of scientific methods in the treatment of moral questions. Pointing out that the discussion of questions of value by philosophic thinkers has made little advance since the time of Aristotle in spite of the general advance of knowledge, Prof. Thorndike asserted that judgments of value or worth are simply a special sort of judgments of fact or existence, distinguished by being concerned with consequences, and with consequences to the wants of sentient beings. Values, positive or negative, reside in the satisfaction or annoyance felt by animals, persons or deities, and while competent students judge the existence of things by observations, they judge the values of things by observations of their consequences. Creating and enjoying truth or beauty are examples of the class of satisfiers which involve positive satisfaction for some without subtraction from, and often with addition to, those of others. Where satisfactions and annoyances lie within the natural world of men or animals, they are amenable to scientific study.

Sometimes indeed it is necessary to judge the value of things, events and relations indirectly by their affiliations, for which a special technique is required.

ALTHOUGH, therefore, values are difficult to determine, they are not banished entirely from the realm of science but are amenable to scientific methods. The work of a science of values, a realistic ethics, is to learn what men do want and how to improve their wants, and to trace the consequences of acts, events, ideas, attitudes, etc. So far, science has tended to leave values alone; but it is not wise to leave decisions about consequences entirely to the humanists. We should regard nothing as outside the scope of science, and every regularity or law that science can discover in the consequences of events is a step towards the only freedom that is of use to man and an aid in the good life. If values do not reside in the orderly world of Nature but depend on chance and caprice, it would be in vain to try to increase them. The world needs not only the vision and valuation of great sages, and the practical psychology of men of affairs, but also scientific methods to test the worth of the prophets' dreams, and scientific humanists to inform and advise its men of affairs, not only about what is, but also about what is right and good.

New Type of Aircraft Structure

MESSRS. VICKERS (AVIATION) LTD. have commenced work upon a production order of 'Wellesley' military aeroplanes, introducing a type of construction with an estimated saving of 35-40 per cent in structure weight, which can be used for increasing either useful carrying capacity or extra fuel, giving greater range. It is known as the 'geodetic' principle, and has been developed by Mr. B. N. Wallis, from a similar method used by him in the construction of the British airship *R.100*. The general principle is that the stresses in the structure are taken by a skin which follows a path between any two points taken by the surface of a cylinder or sphere. The skin is built up by a large number of small members, placed criss-cross, disposed of in such a way, and of the correct size, to take the local loading most advantageously. Thus the advantage of a skin construction, in that the interior of the wing or body is left clear, is obtained, with the added gain that local damage, as from gun fire, is confined to the actual parts broken, and does not spread catastrophically, as in the case of a very thin continuous skin. Stressed skin construction has many advantages. The higher loading with increased speeds can be taken with a proportionately smaller increase in weight than with the more conventional structures. The absence of interior bracing simplifies the questions of storage of the carried load. The problem of producing a wing of variable area to suit varying flight conditions becomes feasible, by making the outer wing portions telescopic, which is almost an impossibility with an interior stressed structure.