capacity and resistance indicate that there can be no coating of badly conducting oxid on the iron, as has been assumed by some observers. The conclusion is drawn that the surface of passive iron consists solely of trivalent iron, the formation of passive iron by oxidizing agents and by electrolysis being due to the replacement of bivalent by trivalent iron.

The subject of the action of water upon metallic lead is one that has been much studied, and the results of different observers have been by no means concordant. A recent extended investigation by Stanislav Růzička furnishes results which are not wholly in accordance with the generally received ideas. His method was to place bright lead in cylinders containing various solutions, insert a stopper and leave the whole for twenty-four hours. The amount of lead in the solution was then estimated. Care was taken to ensure the absence of air. Nitrates, chlorids, sulfates and carbonates of alkalies and alkaline earths were studied, and also various organic substances. Among his conclusions are the following: The action of salts is wholly independent of the base, and is proportionate to the solubility of the lead salt of the acid of the salt used. Thus nitrates have the most action, chlorids next, sulfates next and carbonates least. The action of the first-mentioned salts is diminished by the presence of carbonates in the water, while the addition of a nitrate increases the action of other salts. If the same piece of lead is exposed to fresh solutions of the carbonate, the action is much diminished, and the same diminution occurs even in the presence of nitrates and free oxygen. Free carbon dioxid greatly diminishes the action of water or salt solutions on lead, while air in all cases increases it. Infusions of grass leaves diminish the action of water, while it is greatly increased by infusion of peat.

A RECENT number of the *Mineralogical Magazine* contains a paper by J. W. Evans on the action of ground-water on pyrites, a study called forth by the building of a reservoir in northern Mysore. It was feared that the large quantity of pyrites in the underlying rock would act harmfully on the water. It was found that when the water was free from carbonates the pyrites are very slowly acted on with the formation of iron sulfate. On the other hand, when carbonates are present iron carbonate, hydroxids and oxids are to be expected, the hydrates being first formed. Free carbon dioxid in the water seems to be without effect. In the presence of pure water, metallic arsenids are changed into arsenates, which are generally insoluble, and the presence of carbonates has merely the effect of retarding the change.

IN an examination of Oriental medicines, P. Guigues had occasion to test a sample of 'Zerquoun minium,' which is used as a rather expensive substitute for the red oxid of mercury. The specimen resembled red lead, but had a lower specific gravity. On treatment with water a white sediment and a red solution were obtained. The former proved to be a magnesium silicate and the red substance a coal-tar dye, revealing the fact that adulterations are not peculiar to the Occident.

The above recalls the fact that the writer came into the possession some years ago of a specimen of Chinese medicine held in high esteem, which, it was supposed, was prepared from urine by some intricate method. Examination showed it to be ordinary salt, and of so pure a quality that it was hardly conceivable that it had been prepared from its reputed source.

J. L. H.

CURRENT NOTES ON METEOROLOGY.

MAURITIUS METEOROLOGICAL SOCIETY.

IT is a pleasure to note that the Meteorological Society of Mauritius has taken a new lease on life. This Society, with which the late Dr. Charles Meldrum was so closely associated, has in the past been active in promoting a study of the cyclones of the South Indian Ocean, to which study Meldrum devoted a large share of his time for about forty years. The successor of Dr. Meldrum as director of the Royal Alfred Observatory and also as secretary of the Meteorological Society of Mauritius, is Mr. T. F. Claxton, F.R.A.S., who is evidently doing much to arouse inter-

est in a society which the honored traditions of the past should most certainly keep alive and active. In the *Proceedings of the Meteorological Society of Mauritius* for 1901, Mr. Claxton has some 'Remarks on the Objects for which the Meteorological Society of Mauritius was Established.' In this paper it is shown that the work already accomplished has been most important, and the hope is expressed that the number of observing stations cooperating with the Royal Alfred Observatory may be increased. An unforeseen decrease in the number of vessels which call at the island of Mauritius has resulted in a corresponding decrease in the number of marine meteorological observations received by the Mauritius Observatory. The annual number of vessels has decreased from 787 in 1878 to 283 in 1900. The material for the daily weather maps is now so scanty that these charts have been discontinued except during cyclone weather, when they are useful for determining the tracks of cyclones. For giving a correct representation of the atmospheric conditions over the Indian Ocean, with a view to studying the sequence of weather changes, the charts are now well-nigh useless.

Vol. I. of a new series of the *Proceedings and Transactions of the Meteorological Society of Mauritius,* 1896–1900, has come to hand recently, and is welcome as a continuation of the older series, which was discontinued in 1864 for lack of funds and other reasons. This volume contains a number of interesting papers, chiefly on the cyclones of the South Indian Ocean from 1896 to 1900. A cyclone in February, 1896, passed centrally over Mauritius, this being the second case of this kind on record since the commencement of systematic observations in 1848. The diameter of the 'eye' was about twenty miles. Meteorologists will be glad to have in their hands these further contributions to the study of the Mauritius cyclones, and will not be slow to express their thanks to Mr. Claxton for his energy in continuing Meldrum's great work.

BRITISH RAINFALL.

The annual volume on 'British Rainfall' comes this year in its familiar blue cloth binding, but with a new name, that of Dr. Hugh Robert Mill, on its title page. As has already been reported in these 'Notes,' Mr. H. Sowerby Wallis succeeded to the editorship of this important publication after the death of Mr. George J. Symons in 1900. Mr. Wallis was associated with Mr. Symons for over thirty years, and from 1890 on his name appeared with that of Mr. Symons on the title-page of 'British Rainfall.' Dr. Mill, as already noted in these columns, has assumed the editorship of *Symons's Monthly Meteorological Magazine,* and is now associated with Mr. Wallis in carrying on the work of the British Rainfall Organization. The present volume is a particularly interesting one. Dr. Mill has a paper on 'The Ilkley Flood of July 12,' which was caused by an unusually heavy rainfall amounting to 5.40 in. at Ilkley itself (the maximum fall for the year in the British Isles); and another paper, of historic value, on 'The Development of Rainfall Measurement in the last Forty Years,' in which the material, size, form, exposure and elevation of rain gauges used in England are considered. It is a satisfaction to know that 'British Rainfall' is to be continued in such excellent hands.

CLIMATIC CONDITIONS OF PANAMA AND NICARAGUA.

In a recent paper on 'The Present Condition of the Panama Canal' (*Engineering Mag.,* January, 1902), Gen. H. L. Abbot considers briefly the climatic conditions of the Panama and Nicaragua canal routes. Throughout the entire region the temperature varies but little during the year from the annual mean of 79°. The high temperatures and high relative humidity forbid hard manual labor on the part of white men. The hospital records of the Panama Railroad and of the Canal Company during the past twenty years show that there is no reason for apprehending serious trouble from sickness in the future. At Colon the annual precipitation is about 129 inches, in the interior, about 94 inches, and on the Pacific coast, about 57 inches. There is a clearly defined dry season of about four months everywhere along the

route of the Panama canal. This season can be used for especially difficult engineering operations. Furthermore, the heaviest work is in the interior, where the rainfall is not excessive. The conditions are less favorable in Nicaragua. Near the Gulf coast, where the heaviest excavations are required, the rainfall appears to be about 250 inches and there is no dry season. On the Pacific coast and in the interior there is less rainfall, and there is also a dry season. Even here, however, the rainfall seems to be somewhat greater than in the corresponding portions of the Panama district.

DAY DARKNESS IN LONDON.

A SHORT article of some interest in *Symons's Monthly Meteorological Magazine* for January concerns the number of hours during which artificial light was necessary in a London office (J. E. Clark, 'Day Darkness in the City'). The record has been kept since September, 1897, and runs through 1901. Office hours were from 9 to 5, and to 1 P. M. on Saturdays. A curve illustrates the diurnal distribution of dark quarter hours. There is a rapid rise from 9 to 10.15; then a marked fall to just before noon; then a slight rise; a fall after 12:30 until just before 1; a rise till after 1 and a steady and marked rise from about 2 on. The first rise is believed to be associated with the lighting of office fires. The noon rise seems to follow luncheon preparations in the restaurants, and that an hour later is thought to be due to the fact that lunching is then in full swing. The results of these observations are not without interest, but the explanation of the facts discovered on the basis of so few records cannot be accepted as at all convincing. R. DEC. WARD.

SCIENTIFIC NOTES AND NEWS.

THE National Observatory question has assumed a new phase through the action of the secretary of the navy, in sending to Congress through the secretary of the treasury an estimate for the salary of a director of the naval (or national) observatory. The committees of Congress thus have the matter before them in a form in which it was never before presented, and it lies with Congress to decide whether it will accede to the recommendation.

PROFESSOR HERMON C. BUMPUS, formerly of Brown University, who has held during the past year the position of assistant to the president in the American Museum of Natural History, New York, was appointed director of the museum at the annual meeting of the board of trustees. This places the museum in the same position as regards administration as the Zoological Park and the Botanical Garden of New York. Morris K. Jesup was reelected president, William E. Dodge first vice-president, and Henry F. Osborn second vice-president.

PROFESSOR W. H. BREWER, for thirty-seven years professor of agriculture in the Sheffield Scientific School of Yale University, will retire from the active duties of the professorship at the end of the present academic year.

DR. J. KINYOUN, who has for fifteen years been connected with the U. S. Hospital Service and is at present commanding officer and chief surgeon of the hospital at Detroit, has resigned from the service.

MR. ALEXANDER AGASSIZ has had a portrait of himself painted by M. Jules Lefevre. The painting in which he is shown in the robe of members of the Paris Academy will be presented to Harvard University.

M. ANDRÉ, of Lyons, has been elected a correspondent of the Paris Academy of Sciences in the Section of Astronomy in the room of the late B. A. Gould.

THE Zoological Society of London will confer its gold medal on Sir Harry Johnston, whose remarkable discovery of the okapi has recently attracted so much attention, and its silver medal on Mr. E. W. Harper, of Calcutta, who has given many rare Indian birds to the society's collections.

SIR JOHN S. BURDON-SANDERSON, professor of physiology at Oxford University, has been given the degree of Doctor of Science by Owen's College, Manchester.

THE University of Jena has awarded and conferred an honorary doctorate on Herr Wilhelm Winckler, in recognition of his astronomical researches.