fessional should be glad of all the support, moral and financial, which he can secure throughout the community, while there are many students who wish to keep advised of all progress as it is made.

Let the 'professionals' constitute the 'members' of the Society and let the test for 'membership' be as rigid as may be found necessary, so that being a member shall constitute *prima facie* evidence to the world of established professional ability and experience.

Let there also be a class of 'associates,' who shall include any respectable person of legal age (duly elected) who desires to join and is willing to pay the established dues.

All members should be elected as associates and any associate should have at all times the privilege of applying to a 'board of examiners' for election to full membership.

This course of procedure has been found satisfactory in the American Institute of Electrical Engineers and in other engineering bodies. It preserves to the professional all the honor and exclusiveness which he can desire, yet serves to draw into a compact and powerful organization all who for any reason wish to keep in touch with the most recent advances.

Such an inclusive policy would seem to be the wise course for all of our scientific societies, each of which is supposed to exist for the purpose of educating the public at large and of arousing a widespread interest in its specialty as well as for the benefit of its professional members.

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New York City.

THE PHYSIOLOGICAL EFFECTS OF THE ELECTRICAL CHARGE OF IONS.

In No. 374 of Science Professor Lee gives a review of the Chicago meeting of the American Physiological Society in which he says that I 'maintained that vital phenomena, in general, are caused by the electrical charges of ions.' I wish to state that I have never held nor expressed such an opinion.

Jacques Loeb.

The University of Chicago,
March 3, 1902.

NOTES ON INORGANIC CHEMISTRY.

In proposing the toast, 'The Houses of Parliament,' at the annual dinner of the fellows and associates of the Institute of Chemistry held in London last December, Professor Ramsay referred to the recent jubilee of Professor Berthelot in Paris and the cooperation of the French government with the scientific societies in honoring the distinguished chemist. He then said that while the British government often has occasion to take the advice of scientific experts, it does not as a rule honor science generally in the persons of those who have most distinguished themselves, as is done in many other countries. He called attention to the work of the chemists of the United States Geological Survey, and regretted that this example is not followed by the Geological Survey of Great Britain. Touching upon the question of water supplies, he gave it as his opinion that, valuable as the bacteriological examination of water is, it must be looked upon as merely confirmatory of the examination of the chemist. In responding to this toast for the House of Commons, Mr. Hanbury remarked incidentally that science would be of incomparably more practical value if its 'hideous terminology' could be done away with.

The question of the existence of the ammonium radical, NH_4, has been very exhaustively studied by Moissan, whose results are published in the *Comptes Rendus* and in the *Archives Néerlandaises*. His methods included the electrolysis of ammonium chlorid and ammonium iodid in solution in liquid ammonia, the examination of ammonium amalgam at a temperature as low as $-90°$, where the amalgam is perfectly stable, and the action of liquid hydrogen sulfid on lithium-ammonium and calcium-ammonium at $-75°$. In none of the experiments was any evidence of free ammonium found, incidentally confirming the recent results of Ruff. Moissan believes, however, that under some circumstances a hydrid of ammonium, NH_4H, is capable of existence.

The passivity of iron has been studied from the standpoint of physical chemistry by Finkelstein. Determinations of its polarization

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-