Viewed Indian Schools

Strattons Back From World Tour

President and Mrs. Stratton returned from a five-week trip to Africa and India last Tuesday, February 12. Dr. Stratton made the trip to observe some of the activities of the Ford Foundation, of which he is a trustee.

After visiting Lagos, Nigeria, the Strattons went on to Nairobi, Kenya, where they met some of the 17 MIT fellows who are at present spending two years under Ford Foundation programs as staff workers for governments and development corporations there.

In India, President Stratton visited the Tata Institute and the Technical Institute in Bombay, as well as the Indian Institute of Technology at Kampur. MIT's Professor Norman Dahl is in charge of a program of nine American universities which are helping to develop this last school.

President Stratton also visited the Calcutta Management Institute and the Metropolitan Planning Commission in Calcutta, and the Small Industries Institute in Katmandu, Nepal.

The final scheduled stop of the tour was a lecture at the University of Delhi, February 5.

Dr. Meeks Explains Gigacycle Spectrum

Dr. Marion L. Meeks, of the Radio Physics Division of Lincoln Laboratory, spoke on the "Microwave Spectrum of the Atmosphere" in last week's COMPASS Seminar.

He considered the Spectrum in the 100 to 300 gigacycle range, in which wavelengths range from 100 to 300 millimeters.

In this range, the microwave spectra of molecules of water and oxygen are visible. Nitrogen, having no magnetic or electric dipole moment, is inert to microwaves. Carbon dioxide, which is a linear molecule, has a spectrum, but it is entirely outside this range.

Oxygen, which has a pair of electrons lined up in parallel, has a magnetic dipole moment. As a result, it provides 30 lines in this range. Water has an electric dipole moment; Since it is an assymetric top, it has a wide range of lines, two of which are fairly strong in the frequency band under discussion.

The theory of microwave spectra has provided equations which have been used to describe accurately the spectra obtained. In this work a digital computer is an essential tool.

Meeks demonstrated the geometrical relationship that the absorption of the atmosphere is proportional to the secant of the zenith angle. He then showed that the value of the absorption coefficient as a function of altitude could be tied down by observing the same object, say the moon or the sun, from different angles through the atmosphere.

Next he discussed the effects of pressure broadening of the lines of the spectrum and showed how the lines of the oxygen spectrum are merged beyond recognition at sea level, but show up very sharp at higher altitudes in balloon studies. A microwave antenna would have to be at least 30 kilometers high to observe a planet at five millimeters wavelength.

Then Dr. Meeks showed the results of some calculations of line broadening and showed that the effects of Zeeman broadening become greater then pressure broadening at 40 kilometers above sea level, and the effects of Doppler broadening exceed both above 90 kilometers.

At the end of the lecture Dr. Meek showed a sketch of the 120-foot diameter microwave antenna which is being constructed inside a 150-foot radome for protection from wind distortion of the accurate antenna.

MIT Expects 25,000 For April Open House

MIT will open its doors to Boston April 27, with its traditional Open House.

The biennial affair, which was not held in 1961, because of the centennial celebration, is expected to draw 25,000 visitors. Almost every academic department and extracurricular activity will have a display at the one-day event.

Open House Committee has emphasized that this event will require the full cooperation of the student body. Many students will be needed to serve as guides and to help set up exhibits. The Committee will contact living groups to obtain students to help with the work.