

vided a dynamic environment conducive to migration, isolation and rapid speciation. The rich and very diverse fauna and flora of south-east Asia becomes more understandable in the light of this theory. Particular studies have accordingly been designed, with encouraging results, to prove its validity; but their discussion belongs to another and later synthesis.

Zool. Survey of India, SUNDER LAL HORA.
Calcutta.

1. Willis, B. and Blackwelder, E., *Research in China*, 1907, 1, 317.
2. Willis, B., *Ibid.*, 1907, 1, 261, 337.
3. Gregory, J. W. and C. J., *Geog. Journ.*, 1923, 61, 173.

4. Hora, S. L., *Proc. Nat. Inst. Sci. India*, 1944, 10, 423-39.
5. Day, F., *Sci. Res. 2nd Yarkand Mission, Ichthyology*, 1878, 1-25.
6. Stewart, F. H., *Rec. Ind. Mus.*, 1909, 3, 121-23.
7. Hora, S. L., *Ibid.*, 1937, 39, 241-50.
8. Menon, A. G. K., *Proc. Nat. Inst. Sci. India*, 1951, 17, 291-99.
9. Auden, J. B., *Ibid.*, 1949, 15, 334, 35.
10. Wadia, D. N., *Geology of India*, 1944, 278.
11. Blanford, H. F., *Proc. As. Soc. Bengal*, 1877, 4.
12. Hora, S. L., *Rec. Geol. Surv. India*, 1937, 72, 178-87.
13. de Terra, H., *In litt.*, 1937.
14. Sahni, B., *Curr. Sci.*, 1936, 5, 10-6.
15. Hora, S. L., *Proc. Nat. Inst. Sci. India*, 1951, 17, 437-44.
16. Raj, B. S., *Rec. Ind. Mus.*, 1941, 43, 213-14.
17. Cau, Y. T., *Biol. Bull. St. John's Univ. Shanghai*, 1935, 1, 7.
18. Menon, A. G. K., *Proc. Nat. Inst. Sci. India*, 1951, 17, 475-97.

PREDICTION OF ELECTRONIC FAILURES

A RELATIVELY unexplored approach to the problem of insuring higher reliability of electronic equipment is being investigated at the National Bureau of Standards, U.S.A. A technique has been evolved experimentally in which a maintenance man simply plugs a portable failure-prediction unit into the slightly modified equipment to be checked and turns a multi-point selector switch; a red light flashes on to identify stages or components that have deteriorated below safe levels and have become prospective causes of equipment failure.

Failure of electronic equipment to function properly may be caused either by sudden or by

gradual failure of a tube or other component. Although improvement of quality seems to be the only way to reduce sudden failures of components, surveys have indicated that at least half of all equipment failures are produced by gradual deterioration of components. The NBS work has been concerned with practical means of spotting these gradual failures before the equipment becomes inoperative. The success of the experimental work at NBS suggests that provision for simple failure-prediction routines for the maintenance of important electronic equipment deserves the serious attention of design engineers.

COBALT 60 TO REPLACE RADIUM FOR CANCER THERAPY

A COBALT 60-beam therapy unit, a gift to Britain from Canada, is shortly to be installed at Mount Vernon Hospital, Northwood, Middlesex. The unit is described as being 200 times more powerful than the radium units in use at present. It is more stable, more reliable and simpler to control than super-voltage X-ray machines and might prove more effective in the control of cancer. It is expected to treat deep-seated, internal, inaccessible tumours which so far have proved beyond the effective range of existing apparatus. A further advantage of the unit is that a greater quantity of radiation could be delivered to the tumour with less damage to the surrounding normal tissues and less disturbance to the general state of the patient.

Cobalt 60 is produced by the exposure of natural cobalt in the nuclear reactor or atomic pile. It is particularly suitable as a substitute for radium in some methods of application. The cobalt itself is relatively cheap and readily obtainable. The cobalt 60 source in the units is a disk only 1" in diameter and ½" thick. The beam of radiation could be compared in penetrative power to that produced by an X-ray machine working at three million volts. The cobalt 60 deteriorates to half its original intensity in just over five years, and it is, therefore, necessary to arrange for reactivation in a nuclear reactor at regular intervals. The cost of a radium unit of such activity would be well over one million pounds, as compared with a cost of £ 25,000 of the cobalt unit.