

TABLE 2
Analysis of alloys and catalysts

Samples	Nickel content of the alloys		Values obtained by	
			Reagent I	Reagent II
Monel metal [Cu 31.60%, Fe 6.80%, Mn 0.70%]	Ni	60.55%	61.76%	61.50%
Nichrome wire [Fe 12.20%, Cr 10.50%, Mn 2.30%]	Ni	74.50%	73.40%	75.40%
CaCO ₃ + Pd (Merck)	Pd	5.0%	4.90%	4.88%
Active Carbon + Pd (Merck)	Pd	10.0%	9.72%	9.71%

evaporated to almost dryness and diluted to 100 ml with water. Samples of Pd(II) in active carbon was treated in a similar manner but 35 ml of 60% perchloric acid and 10 ml of con. nitric acid were added. The analytical results are given in table 2.

The diimine dioxime complexes of nickel and palladium are readily extracted into molten naphthalene. A characteristic of this method is that equilibrium distribution in two phases is attained rapidly due to the high temperature; and the complexes are extracted, merely by contact with molten naphthalene.

The author express his sincere thanks to Prof. P. B. Janardhan, Department of Analytical Chemistry, Madras University, for his valuable guidance.

11 May 1981

1. Mathur, N. and Narang, C. K., *Talanta*, 1964, **11**, 647.
2. Riyazuddin, P., *Curr. Sci.*, 1980, **49**, 703.
3. P. Riyazuddin, *Indian J. Chem.* 1981, **20A**, 312.
4. Fujinaga, T. et al., *Talanta*, 1969, **16**, 1225.
5. Fujinaga, T. et al., *Bull. Chem. Soc. Jpn*, 1973, **46**, 2090; 1975, **48**, 899.
6. Fujinaga, T. et al., *Bunseki Kagaku*, 1970, **19**, 216; 1976, **25**, 313.
7. Satake, M. and Takegi, Y. *Bunseki Kagaku*, 1977, **26**, 286.
8. Satake, M. et al., *Fukui Daigaku Kagakubu Kenkyn Hokoku*, 1976, **24**, 337, 349, 343, 331, 325.
9. Perrin, D. D. and Demsey, B., *Buffer for pH and metal ions control*, Chapman and Hall, London, 1974.
10. Job, J., *Ann. Chim. Phys.*, 1928, **9**, 113; *Compt. Rend.*, 1925, **180**, 928.
11. Irving, H. and Pierce, T. B., *J. Chem. Soc.*, 1959, 2564.

A NOTE ON THE OCCURRENCE AND HABITAT FEATURES OF *ICHTHYOPHIS BEDDOMI* (PETERS) AND *URAEOTYPHLUS NARAYANI* (SESHACHAR)

T. A. BALAKRISHNA, K. R. GUNDAPPA* AND KATRE SHAKUNTALA

Department of Zoology, Bangalore University, Jnana Bharathi, Bangalore 560 056.

*Department of Zoology, J.C.B.M. College, Sringeri 577 139, India

THE Apoda is a group of terrestrial amphibians, whose restricted distribution, both as species and as individuals, seems to be governed by a highly specialised environment. We have found that acidic soils, associated with certain other features, are favourable for the existence and survival of a species of this order¹. We have subsequently been able to determine the ecological conditions conducive to the life of two more species, *Ichthyophis beddomi* and *Uraeotyphlus narayani*.

In June 1981, adults and larvae of *I. beddomi* and *U. narayani* were collected around Sringeri, Karnataka. The chemical composition of the soils from the two localities (Hechagunda and Balemane), was analysed by procedures described earlier¹, and the data are presented in table 1. Both soils are acidic, rich in organic matter and organic carbon. Both had a temperature of 25°C, which varied insignificantly with depth (up to 25 cm).

That more than one species of the Apoda prefers acidic soils associated with certain other physical and chemical characters, is interesting and leads to the conclusion that this combination of ecological factors could be universal to the group. No data are available in regard to any other Apoda and it would be of immense interest to know the ecological conditions under which the African and the new world Gymnophiona live.

It has been the common belief that larval habitat of terrestrial Apoda differs from that of adults. The observations^{2,3} made many years ago that the larvae

TABLE I

*Chemical Composition of the soils inhabited
by the Apoda*

Constituents	Locality	
	Hechagunda	Balemane
pH	5.55	5.60
Specific conductivity (Micromhos/cm)	2590.00	2485.00
Free calcium carbonate (%)	1.75	1.58
Available phosphorus (mg/100 g soil)	1.77	1.83
Total nitrogen (%)	0.17	0.16
Organic carbon (%)	2.58	2.70
Organic matter (%)	4.45	4.66
C/N ratio	15.23	16.75

were found in flowing waters led to the belief that in *Ichthyophis*, the female parent transported the eggs to the nearest freshwater stream at the time of their hatching. Our current observations indicate that the larvae occur in the same environment as that of the adults. If the larvae were seen in streams around such hilly regions^{2,3}, it appears no more than accidental⁴.

Two egg clutches with eggs in advanced stage of development were also collected in the same habitat as that of the adults and the larvae. However, no female parent was found guarding these egg clutches. While parental care appears to be a universal phenomenon in females of oviparous members of the group⁵, it is interesting to note that it does not last throughout the period of embryonic development. That the eggs hatched soon after they were collected and brought to the laboratory indicates that perhaps the parent abandons the eggs, around the time of hatching.

While the above observations are of interest as throwing light on the reproductive biology of the Apoda, it would seem necessary and urgent that similar studies be made on the Apoda of other continents.

The authors are thankful to Professor B. R. Seshachar who has critically gone through the manuscript and offered several valuable suggestions.

30 December 1981

1. Gundappa K. R., Balakrishna T. A., and Katre Shakuntala, *Curr. Sci.*, 1981, 50, 480.
2. Seshachar B. R. and Iyer, M. S. M., *Half yearly J. Mysore Univ.*, 1932, 6, 171.
3. Seshachar, B. R., and Ramaswami, L. S., *Half yearly J. Mysore Univ.*, 1943, 4, 111.
4. Sarasin, P. and Sarasin, F., *Ergebnisse naturwissenscha-*

ftlichen Forschungen auf Ceylon in den Jahren 1884-1886, Zur Entwicklungsgeschichte u. Anat. der Ceylonische Blindwuhle *Ichthyophis glutinosus*. C.W. Kreidel's Verlag, Wiesbaden, 1887-90, pp. 263.

5. Wake, M.H., in *The reproductive biology of amphibians*, Taylor D. H., and S. I. Guttman (eds), Plenum Press, New York, 1976.

DEPOSITION OF CHINESE NUCLEAR DEBRIS IN CHANGME KHANGPU GLACIER, SIKKIM

N. BHANDARI, V. N. NIJAMPURKAR,
P. N. SHUKLA AND V. M. K. PURI*
Physical Research Laboratory
Ahmedabad 380 009, India
*Geological Survey of India
Calcutta 700 071, India

SNOW collected in August 1981 from Changme Khangpu glacier in Sikkim valley shows the presence of nuclear debris. Several radioisotopes, particularly ⁹⁵Nb, ⁹⁵Zr, ¹³⁷Cs etc. at levels ranging between 2 to 60 dpm/litre are found to be present based on gamma ray analysis of these samples. The implications of these results are described here.

Changme Khangpu glacier located at 27° 58' N, 88° 42' E at an altitude of 4800 to 5500 m is a small (5.8 km long, 0.6 to 1 km wide) valley type glacier in the Sikkim valley¹. During the course of glaciological expeditions in collaboration with the Geological Survey of India, Eastern Region, several samples of snow, accumulated during 1980-81, and ice from accumulation zone to the snout in sets of horizontal and vertical profiles were collected. Some samples of Zemu glacier (24 km long) situated nearby (27° 45' N, 88° 32' E) were also collected. Most of these samples were collected for ³²Si, ²¹⁰Pb, ¹⁸O/¹⁵O and D/H analysis with a view to study glacier accumulation characteristics, dynamics and palaeoclimatic conditions. Some of this work requires processing in the field. In these procedures, the radioisotopes were scavenged, after addition of suitable carriers, on iron hydroxide in ammoniacal medium. A detailed description and analysis will be reported elsewhere (Nijampurkar *et al* 1982). Here we report the results of gamma ray analysis of samples listed in table 1.

The hydroxide precipitate from 10 to 50 litres of snow or ice melt were counted on a high resolution intrinsic Germanium detector located in a 10 cm lead shield. The detector efficiency was determined from a mixed gamma ray source (SRM-4275) obtained from National Bureau of Standards, USA. About 35 peaks could be identified in the gamma ray spectrum of ice. These belong to three groups of isotopes. The natural