TWO NEW RECORDS OF THE SPECIES OF THE GENUS *TRICHURIS* FROM INDIAN RUMINANTS

IN the paper are recorded, *Trichuris parvispiculum* from goats and sheep and *Trichuris discolcr* from cattle and buffaloes. *T. parvispiculum* is previously known from goats in South Africa Ortlepp (1937) while *T. discolor* was originally described by V. Linstow (1906) from Ceylon. *T. parvispiculum* is a very common parasite of sheep and goats in the Punjab and United Provinces and was collected from Sialkot, Lahore, Multan, Delhi, Mukteswar-Kumaon and Izatnagar. *T. discolor* is on the hand rare and has been collected only from five cases out of fifty so far examined. Those were collected twice from Mukteswar, once from Izatnagar and twice from Sialkot. Examination of fæces of calves at Izatnagar showed that calves of about 1½ years of age always harboured trichurids. It has previously been reported by the author (paper in press) that *Trichuris globuloso* is a very common parasite of sheep and goats and occurs along with *T. parvispiculum*. The cattle slaughtered in localities where this parasite occurs, do not harbour *T. globulosa* though it has been reported from these animals from other countries.

Description of *T. parvispiculum* is not given in the paper as the material tallies in all essentials with that of the original author. A character not mentioned by him is that there are

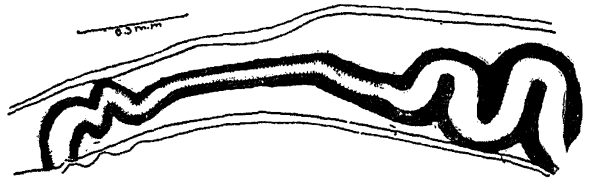

FIG. 1. *T. discolor;* Vagina

cuticular vesicles on the anterior part of the species. Presence of cuticular vesicles has been mentioned by Hall (1910), Solomon (1932) and Baylis (1935) in the species *T. leporis, T. spiricollis* and *T. mettami* respectively.

Host: *Capra hircus* and *Ovis aries.*
Location: Cæcum.
Locality: Indicated in the text.

It is not the intention of the author to dwell of characters already described by V. Linstow and hence only characters not previously described and considered useful in the proper identification of the species are included. The description is based on thirty individuals.

Male: Internal genitalia. Vas deferens measures from 2·4-3·15 mm. and ejaculatory duct 8·6-10·2 mm. long. The muscular constriction which joins the two parts is about 0·27 × 0·18 mm. Cloaca varies 1·55-1·7 mm. in length with the spicular tube joining it 0·55-0·85 from the posterior end. The ejaculatory duct pursues a somewhat wavy course for some distance from its start and is approximately about three times the size of vas deferens and seven times the size of cloaca. Testis starts in the region of cloaca, is straight in about one-third of the ejaculatory region, becoming moderately convoluted thereafter while in the region of vas deferens it is beaded.

There are vesicular swellings on the anterior end and cuticular vesicles and plaques at some distance from the anterior end. There is a conical papilla on either side of the posterior end.

Female: Vagina after about two proximal curves is straight for some distance and is again followed by a few curves before joining the uterus. The diameter of the straight middle part is even throughout, is less than that of the proximal curves and is at the same time less muscular.

Host: *Bos indicus* and *Bos bubalis.*
Location: Cæcum.
Locality: Mukteswar-Kumaon, ,Izatnagar, U.P., Sialkot (Punjab).

Military Dehydrated Meat Factory,
Agra, M. M. SARWAR.
May 7, 1945.

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STUDIES ON THE CATALYTIC FORMATION OF DI-OLEFINS FROM MONO-OLEFINS

(*a*) *Chemical Equilibrium in Butadiene-1, 3 Formation from Butene-1 at Low Pressures*

IN view of the difficulties involved in the determination of chemical equilibrium in the dehydrogenation of butene-1 to butadiene-1, 3, at atmospheric pressure, even in the presence of a highly active catalyst such as Cr_2O_3-Al_2O_3, an apparatus has been specially devised to study the reaction at the lower pressures of 10-50 mm. of mercury and in the temperature range of 360-540° C. The reaction has been studied in detail over the following three catalysts:

(1) Cr_2O_3-Al_2O_3 (5 per cent.); (2) Cr_2O_3-Al_2O_3 (5 per cent.)-V_2O_3 (2·5 per cent.)-Mo_2O_3 (2·5 per cent.); (3) Cr_2O_3-Al_2O_3 (5 per cent.)-Cu (10 per cent.), of which the catalyst No. (3) promoted by copper has been found most efficient. The equilibrium constant of the reaction has been calculated from the equation,

$$K_p = \frac{Px^2}{(1 - x^2)}$$

where x is the degree of dissociation of butene-1 and P is the total pressure in atmosphere. From the value of K_p, free energy of the reaction has been evaluated by using the relation, $\Delta F_T = -RT\ln K_p$ The following