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A TECHNIQUE OF THE DISSECTION OF PARAMPHISTOMES

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In order to examine flukes morphologically, they may be flattened between glass slides so that their characteristics may be more ready observed, and, if necessary, they may be sectioned for histological examination. But, the former method is not available for such cylindrical or fleshy trematodes as the paramphistome and lung fluke, *Paragonimus*, because the inner organs of the flukes are easy to be removed from their natural positions by means of pressure and consequently it may become difficult to examine morphologically and to identify the flukes. On the contrary, the latter method takes much trouble and time. So, the less troublesome method has been required for the morphological examination of trematode parasites.

In my experiment, the paramphistomes, *Watsonius macaci* Kobayashi and *Gastrodiscoides hominis* (Lewis et McConnel) collected from the monkey, *Macaca irus*, were used for material. The live specimens fixed with 70% alcohol heated at about 70°C produced better results than those fixed after the death or fixed with cold formalin, in which shrinkage resulted. The fixed specimens were transferred to 2% alcohol and then stained with Gower's improved carmin, described later, for from 12 to 36 hours. The stained specimens were gently dehydrated with a series of alcohols of 20%, 30%, 50% and 70% after being washed in a few changes of water. The specimens then were differentiated with the alcoholic solution, which was made by pouring some amount of 70% alcohol on a few small pieces of potassium chlorate crystals, after hydrochloric acid had been dropped on them. The differentiation were better made in varying degrees in the different specimens, when they were washed in a few changes of 80% alcohol and then dehydrated with 90% and absolute alcohols. They were then placed in the mixture of one part of absolute alcohol and one part of cedarwood oil till they became translucent and afterwards were transferred to cedarwood oil for clearing.

Dissection was made by the technique with the instruments described below. The specimens were dissected in a shallow glass dish, as shown in text-figure 1, with cedarwood oil under the binocular microscope of about thirty magnifications. The instruments used for dissection are the dissecting needle, which was made by inserting an injection needle of 1/4 mm in diameter, instead of a sewing one, into a wooden handle, the forceps, as those used in embryology, with the finer tips than those of the watchmaker's or jeweller's forceps, and the ophthalmologic scissors (Figure 1). The specimens had the integument cut or stripped off with the needle, then they were ready for

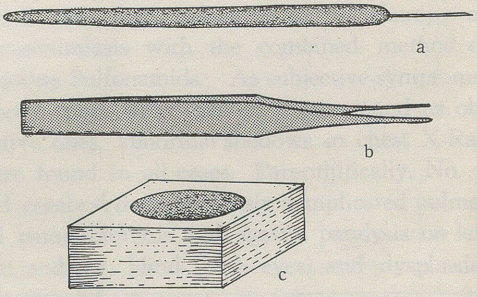

Figure 1. Instruments for dissection.
a. Dissecting needle ; b. Forceps ;
c. Shallow glass dish.

observation of the inner organs. If the specimens would need to be cut, the scissors should be used. During dissection, the forceps may be used for holding the material.

Gower's improved carmin is as follows:

45% glacial acetic acid ····· 100 cc
carmin ····· 10 g

Boil the mixture and filter after being allowed to cool.

the filtered acid carmin ····· 1 g
alum ····· 10 g
distilled water ····· 200 cc

Mix the solution throughly, heat and filter after being allowed to ccol. A small piece of thymol should be added to the stain to keep from getting moldy.

双口吸虫類の解剖法

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吸虫の形態学的研究の場合には圧扁標本又は切片標本が用いられるが，双口吸虫，肺吸虫のように肉厚の虫体では圧扁することにより内部臓器が変位する不都合があり，又切片標本では製作のために手間と時間がかかる．本法は生きた虫体を 70°C，70% アルコールで固定後，2%アルコールを通して Gower の改良カーミンで染色（12-36 時間），20→30→50→70% 各アルコールで徐々に脱水し，次のアルコール溶液で弁色する（塩素酸カリ結晶の小片に濃塩酸を滴下した後に，70% アルコールを加える）．染色の程度は扁平標本の場合よりやや濃い方がよいが，種々の程度の個体があればさらによい．弁色後，80% アルコールで洗い，90%→純アコルールを経て，純アルコールとシダー油半々の混液に半透明になるまで入れ，後にシダー油に移す．透化した虫体はシダー油に入れたまま，解剖顕微鏡下で第 1 図に示したような器具を用いて解剖する．解剖針は普通の縫針の代りに $^1/_4$ mm 径の注射針を用いる．