Testosterone and testosterone propionate in varying doses have been administered to rats at varying periods of pregnancy. A large percentage of resorptions or still births have resulted. To date, however, seven litters have been obtained. In these litters there were twenty-seven normal males and nineteen females with varying degrees of intersexuality. Three of these litters are now completely mature (67 to 70 days, with weight 150 to 170 gms) and display no evidence of further "feminization."

A rudimentary but patent vagina is present in the female adult offspring of one litter, whose mother received a small dose of testosterone late in pregnancy (3.3 mgm on nineteenth day). In all other animals the pelvic vagina is absent (distal portion). In all animals dissected to date, mature or new born, attached to the proximal urethra at the base of the bladder, are paired glandular structures that histologically resemble prostate. In addition other glandular tissue that histologically resembles seminal vesicles is found.

In adult animals that have been killed apparently normal ovaries (corpora lutea present in one case) have been found with seemingly normal oviducts and uteri that end in a dilated, bulbous structure that represents the proximal portion of the vagina.

Other animals, whose mothers received the male sex hormone earlier in pregnancy, show varying degrees of inhibition of Mullerian duct, and stimulation of Wolffian duct derivatives. In one animal, whose mother received 2.5 mgm testosterone propionate on the twelfth day of pregnancy, the oviducts are seemingly absent and the uteri are represented by a very rudimentary structure immediately posterior to the bladder. Prostate, seminal vesicle and a rudimentary vas deferens are present.

The external genitalia of affected animals vary. The offspring of mothers receiving the male sex hormone late in pregnancy have a crescentic fold of skin that represents the vaginal orifice surrounding the caudal base of an organ that resembles a "hypospadic" clitoris. With larger doses given earlier in pregnancy the organ resembles a penis, but is smaller than the penis of a litter brother.

It is rational to expect that male sex hormone may influence the development of the primordia of the female genitalia as late as the twelfth to fourteenth day of gestation, because the early development of the rat embryo is very slow, *e.g.*, the mesodermal layer does not appear until the ninth day.[4] It is known that if in cattle[5] or pigs[6] the circulation of twin male and female embryos is interconnected, the female becomes modified in the male direction. Lillie[5,6] postulates that this is due to the effect of a male sex hormone upon the anlage of the genitalia of the female embryo. Further, a report by Dantchakoff,[7] which was found during the preparation of this communication, shows that on injecting testosterone into the amniotic sack of embryo guinea pigs, agenesis of the vagina and other evidences of intersexuality result. Thus our results on the rat are quite analogous to those on the guinea pig.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

CLOT PREVENTION IN BLOOD STUDIES IN ANIMALS

THE blood of laboratory animals, such as rabbits and rats, clots very rapidly, making blood counts rather difficult, especially when large numbers of such counts have to be made daily and over a long period of time. Blood films from such animals are likewise not always satisfactory, owing to the fact that the cells form small clusters that cover a good portion of the slide, at times including such of the morphological elements as are to be particularly studied. The subsequent cleaning of the pipettes is difficult and time-consuming.

To avoid these handicaps the writer has, for the past several years, been using a simple method which apparently overcomes all such difficulties. With this method the blood films are always satisfactory and legible and always successfully stained vitally, the counting of the blood cells is easily carried out and the cleaning of the pipettes offers no problem. This method is as follows:

When rabbits are used the ear is rubbed gently with a piece of gauze, previously dipped into a saturated solution of sodium citrate. The excess citrate solution is wiped away, leaving the surface very slightly moist. This causes the veins of the ear to dilate greatly, such dilations being greater than when heat or acetone had been applied to the animal's ear. Puncturing of a vein over this area permits the blood to flow freely, and collection in a counting pipette or on a slide or cover-slip for smearing offers no difficulty, since the minute particles of sodium citrate that remain on the skin and the hairs prevent coagulation.

When rats are used the end of the tail of the animal

[4] G. C. Huber, *Jour. Morph.*, 25: 247, 1915.
[5] F. R. Lillie, *Jour. Exp. Zool.*, 23: 371, 1917.
[6] W. Hughes, *Anat. Rec.*, 41: 213, 1928–29.
[7] V. Dantchakoff, *Compt. rend. Soc. d. Biol.*, 174: 516 (March), 1937.

is snipped off and immediately inserted into a test-tube containing a saturated solution of sodium citrate and then dried by gentle wiping with clean gauze. The blood drips freely from the wound and no clotting occurs in the pipettes or on the slides. If a number of counts or blood films are to be made from the same animal the end of the tail may from time to time be wiped with gauze very slightly moistened with the sodium citrate solution.

This method is time-saving and satisfactory in every way. The only necessary caution is not to have the site of puncture or wound too wet, as an excess of sodium citrate will cause the cells to crenate and might also interfere with the vital staining. This, however, is easily avoided by leaving the skin of the animal only slightly moist.

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A CONVENIENT METHOD OF SECURING BLOOD FOR ANALYSIS

MICRO methods for blood analysis are rapidly replacing those requiring larger samples. The advantages of finger prick over venepuncture are too apparent to require comment. However, it has been difficult to secure enough blood by sticking the finger even for analyses which require but 0.2 cc. A drop large enough falls off the finger before it can be taken up with a pipette. If a number of smaller drops are used, it is difficult to avoid the introduction of air bubbles.

These difficulties may be obviated by pricking the finger with a lancet and letting the blood drop onto a paraffin block with a depression on it. Slight pressure proximal to the wound or a rubber band placed around the finger will produce free flow and as much as 1 cc may readily be obtained. Then the blood can be drawn up into the pipette. The blood will not clot on the paraffin in the short time necessary for collection.

The paraffin blocks are very easily prepared. A muffin tin, consisting of six depressions in a tin plate, can be purchased in any hardware store for a few cents. The depressions are filled with melted paraffin and then set aside to cool. The contraction of the paraffin in cooling will produce a smooth depressed surface that serves admirably for the collection of blood. The blocks are easily removed from the tin after solidification by chilling under running water.

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AN INEXPENSIVE VIEWER FOR MANUSCRIPT FILM

USERS of *Bibliofilm* and others interested in reading printed matter copied on 35 mm motion picture film may find useful a simple film-reading device on sale for twenty cents at the F. W. Woolworth stores.

The instrument is intended for use with stereoscopic films prepared by its manufacturer, Novelview, Inc. It is simply designed and sturdily built of metal and neatly molded bakelite. Light enters and is diffused through translucent celluloid screens (see diagram) each the size of a standard motion-picture frame. The

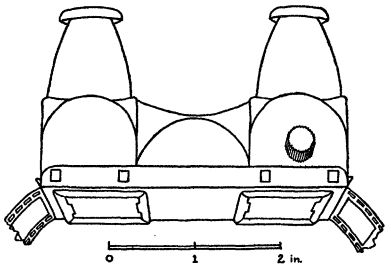

FIG. 1.

film passes through a metal track and is advanced by turning a knurled knob conveniently located. The track maintains tension at the edges of the film, holding it firmly in place and preventing it from being scratched.

The twin eyepieces are equipped with lenses of fixed focal length which magnify sufficiently to permit reading of copies of typewritten manuscript or of average size print. Considering the instrument's low cost, the lenses have remarkably flat fields and give good rectilinear rendition. The metal eyepieces are removable and more highly corrected lenses could be substituted if desired. Because of its binocular construction the instrument is easy to handle. One field may be blacked out with India ink, cardboard or Scotch tape, thus making it easier to keep both eyes open.

Although the viewer could not be used for long periods without eyestrain, it serves adequately for occasional use. The small size, light weight, extremely low cost and wide availability of the Novelview make it worth the attention of any scientist who wishes an instrument of this type for occasional use.

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