costal cage. The glandular mucous membrane was thickened with coarse, grey, hypertrophied rugae. This change began abruptly at the constriction in the middle of the stomach and decreased progressively, disappearing near the pyloric orifice, with the most marked involvement along the greater curvature. Microscopically, the changes consisted of a pronounced hyperplastic adenomatous overgrowth of the glandular mucous membrane, with coarse polypoid projections resembling hypertrophied rugae. The glandular structures became dilated and irregular in outline with the formation of microcysts in some specimens. Collections of inflammatory cells were scattered through all coats of the viscus. The cardiac chamber only occasionally showed slight hypertrophy and hyperkeratosis of the squamous epithelial lining. Coincident with the development of the lesion, the normal distribution of the various cell types in the glandular mucous membrane was disarranged. The epithelial cells became irregular in size, shape and staining, and showed squamous, cuboidal, polygonal and columnar forms with numerous mitotic figures. Some cells were necrotic, desquamated and keratinized and a few acini appeared completely filled with keratin. Although the process usually appeared superficial and well limited to the mucosa, in several specimens distended acini were observed indenting the basement membrane and lying partly below it. Furthermore, in nine of twenty-one cases, a few small fragments of atypical epithelial cells were found below the basement membrane, usually in the submucosa but also in the muscle and, in two cases, in the lumens of veins. These deeply situated deposits rarely consisted of more than one or two fragments in a given specimen and their significance in this connection has not been definitely established. No metastases were observed in any instance. Starvation, dependent upon alteration of the mucosa and occlusion of the gastric lumen appeared to be the cause of death in many mice of this strain.

So far, with the exception of three old strain C_3H mice aged 22.5, 23 and 24 months, analogous lesions have not been encountered in the stomachs of mice of various other pure strains.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN IMPROVED INSTRUMENT FOR THE INTRACEREBRAL INOCULATION OF EXPERIMENTAL ANIMALS

THE inoculation of animals by the intracerebral route is a procedure frequently employed in research and diagnostic laboratories. This method necessitates the use of a pointed instrument to penetrate the skull, except when the experimental animals are young mice. Of the wide variety of commercially available trephines and improvised instruments now commonly used for this purpose in different laboratories, we have not found any that is as satisfactory as the instrument to be described in this note. Because of its construction, it can not be inserted too deeply, thereby injuring the brain. Furthermore, it has the advantage of a groove which permits insertion of the inoculating needle without necessitating the withdrawal of the instrument, thereby eliminating the possibility of losing the hole through the skull. Any one who has used the intracerebral method for inoculation has experienced this time-consuming annoyance.

The instrument may be made of any suitable material. We have found that common nails serve admirably. They are cheap and universally available. A small vise and two steel files are all the equipment required. The procedure is as follows:

(1) File off one side of the nail to make an oblique plane (Fig. 1–A).

(2) Using a three-cornered file, make a longitudinal groove down the middle of the oblique plane (Fig. 1–B).

(3) File a circular shelf near the point, extending inward for one third of the nail's diameter (Fig. 1–C).

(4) File a triangular point, the size and depth of which is determined by the thickness of the skull of

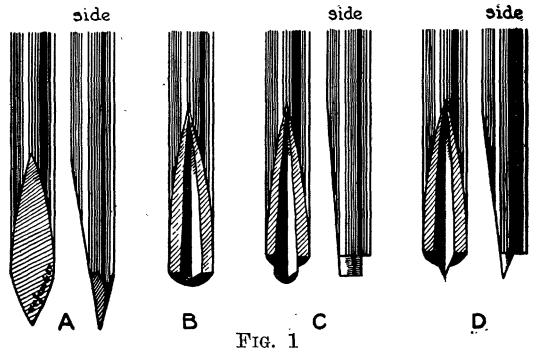

FIG. 1

the experimental animal for which the instrument is destined. This point is separated from the rest of the instrument by the shelf (Fig. 1–D), which serves to prevent penetration of the skull more deeply than desired (Fig. 1–D). By extending the groove (Fig. 1–A) to the very point, the inoculating needle can enter the brain substance without necessitating withdrawal of the instrument.

We have used common nails with complete success and have found that the following sizes are the most convenient for the experimental animals designated: for old mice, rats, etc., 16 penny (3½ inch) nails; for guinea pigs, rabbits, ground squirrels, etc., 30 penny (4½ inch) nails; and for ferrets, monkeys, woodchucks, etc., 60 penny (6 inch) nails.

The procedure of intracerebral inoculation, as routinely carried out in our laboratory with the instrument just described, is as follows. The site to be inoculated is usually in the parietal region overlying the right cerebral hemisphere, midway between the external canthus of the right eye and the external occipital protuberance. Following anesthetization of the experimental animal and suitable preparation of the skin, a small incision is made through the skin a short distance to one side of this mid-parietal site. The point of the instrument is inserted through the skin incision, the scalp is retracted with it, and the skull is penetrated at the site described. The point of the instrument is left in place in the skull and the needle of the syringe containing the suspension to be injected is slid along the groove until, penetrating the skull beside the point, it enters the cerebral cortex. The desired amount of inoculum is injected, and the needle and the instrument are withdrawn together. Following withdrawal, the retracted skin, by immediately rebounding, provides a satisfactory covering for the opening through the skull.

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FILTER-METHOD FOR CLEAN ISOLATION OF TRICHINELLA-LARVAE

IT is well established that Trichinella-larvae having entered the stomach move to the small intestines of the host in order to invade instantly the mucous membranes. The following procedure makes use of this activity of the larvae as it is done in the Bearman-method.

The neck of a glass funnel is transversally cut and a perforated rubber stopper slipped over the stump in order to hold a test-tube (centrifuge) in a water-tight position. The funnel rests on a tripod ring (see Fig. 1). A cylindrical fruit (Mason) jar, smaller in circumference than the funnel, a fitting glass cover, four layers of gauze and a rubber stopper (the latter in order to close the inner opening of the funnel, if desired) may be kept ready.

For use, both funnel and test-tube are filled with tap water (2 per cent. sodium chloride solution is preferable). Thoroughly minced Trichinella meat is mixed with digestion fluid and filled into the jar. Its

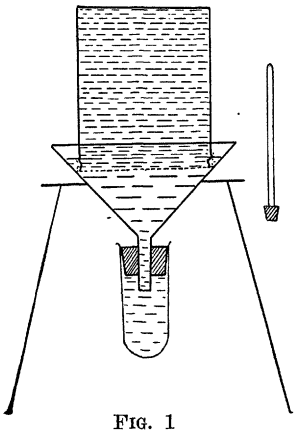

FIG. 1

top is then covered with four layers of gauze, which is tightly ligated around the rim. The glass cover is now pressed against the gauze filter and the jar placed upside down into the funnel. After the cover has been cautiously removed the jar rests in an upright position in the funnel. The apparatus remains undisturbed in the incubator.

After completion of the digestion the glass cover is inserted, the jar removed, the inner opening of the funnel closed with the aid of the rubber stopper, and the fluid in the funnel decanted. More recently we omit the use of glass cover and rubber stopper for these operations without disadvantage. The sediment in the test-tube contains the total amount of living Trichinellas of the digested meat free from coarse particles. Further operations follow the ordinary methods.

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