year of age, it is evident that, at least, there were comparatively very few.

It is, of course, undeniable, from the nature of the infection, that contact cases may develop, and the percentage of the same may be indicated by the incidence of the disease among the exclusively breast fed exposed to other cases, since milk infection, except in the case of an infected mother, would be excluded. Furthermore, if the organism causing distemper (often with paralytic symptoms) among the domestic animals, coincidently with outbreaks of human poliomyelitis, so frequently mentioned in the literature, be actually identical with its certainly near relative, that causing infantile paralysis, then the per cent. of contact infection from animals to man will approximate the rate from man to man. However, the great mass of the evidence in the literature indicates that direct human to human transmission is of small importance.

It may be, in the development of the disease in even the most susceptible child, that massive doses of the organism are necessary, as, for instance, in large quantities of milk, either surcharged with the germs, or in which great multiplication of the organism occurs after ingestion.* The paresis of the intestines common at the onset of the malady, helps this theory, since the longer the infected material lay in the intestines the greater the number of germs that would gain access to the system.

In connection with the temperature at which I found the organism grew well, note the temperature range in New York City during the recent epidemic, and how the case incidence rose and fell as the mean of 70° was passed and surpassed.

MONTH	MEAN TEMPERATURE	CASES
May	59.3° F.	29
June	64.2°	756
July	73.8°	3863
August	73.6°	3306
September	66.0°	780
October	57.2°	193

* A most interesting "Report of a Possibly Milk-Borne Epidemic of Infantile Paralysis" by Dr. John C. Dingman, of Spring Valley, N. Y., appeared in the December number of the *New York State Journal of Medicine*.

NAIL PUNCTURE WOUNDS OF THE FOOT: RESULTS IN 100 CASES.

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THIS paper represents work done at Norton Company Hospital during the year 1916. In all cases the technic was the same, though the treatment was administered by different doctors and nurses. The work having been done upon employees covered by insurance, it has been possible to get accurate data upon the exact duration of disability for work from the insurance

company, while the hospital records give the number of dressings needed by each patient.

Nail puncture wound of the foot is a common surgical condition occurring among laborers, especially those doing construction work. The puncture wound usually occurs through a man stepping on a plank from which there are projecting nails. These naturally vary in length, but usually project from 1 inch to 1½ inches beyond the plank. In the majority of cases the nails are clean and sharp, and make a stab wound which penetrates the sole of the shoe, the sock and the foot. In every case the patient had removed the nail from the foot himself before applying to the Hospital for treatment. The majority of wounds occur upon the ball of the foot (62%), and there seems to be little choice as to which foot suffers. We find that they are about equally divided between the right and the left. Most of the injuries appear to be near the center of the ball, between the first and fourth toes. The nail, upon entering the foot, passes through the tough outer skin, penetrates the deep fascia, and then passes through the muscles and embeds itself between the metatarsals. The tendency seems to be for the metatarsals it strikes to slide away from the nail. In my whole series of 100 cases there was not one in which there was any evidence of a nail having penetrated the tendon sheath of the flexor tendon, or of injury to the tendon. It is generally believed that wounds of this type are very prone to become infected, because of the dirty shoe, the equally dirty sock and the still more filthy condition of the patient's foot. If not treated, these cases certainly become septic in many instances, as I have found from my general hospital experience. The same is true in a few cases here noted which presented themselves for treatment after an interval of a day or more following the accident. The majority of cases, however, were treated immediately following the accident, that is, within a period of fifteen or twenty minutes, and I attribute the good results to this proper treatment.

The method of treatment used is that recommended by Dr. W. G. Hudson of the DuPont Powder Company, in a personal conversation, and this method is at present in use at the DuPont Powder Company as well as Norton Company. The technic is as follows: The foot is thoroughly washed with hot water and soap, in order to get it as clean as possible. This is done rapidly and thoroughly, very hot water being used. The foot is then dried, and an area about 2 inches square around the puncture wound is thoroughly washed with alcohol. The sole of the foot is then painted over with commercial gasoline, and after this has evaporated one or two coats of tincture of iodine are applied in and around the wound. A sterile probe is then passed into the wound without pressure, and finds its way to the full depth of the wound. It is important that this manipulation be done

gently, and that the end of the probe be guided in several directions after passing through the skin, as the plantar fascia is liable to be distorted following the accident, so that at first the wound appears to be more superficial than it is, and the deeper hole must be found before the full length of the tract of the injury can be probed. After the probe fills the entire wound tract a hypodermic is filled with 10 cc. of tincture of iodine, U. S. P., and the needle is gently inserted following the probe as a guide, and hugging it closely until it has reached the bottom of the wound. The iodine is then injected very slowly and allowed to run out along the probe until the operator feels certain that the entire tract has been thoroughly washed out with iodine. The probe and needle are then withdrawn. (This injection of iodine is very painful, but the pain is of the bearable type and feels like a sharp burn. It lasts only from 30 to 45 seconds as timed by watch). A dry sterile gauze dressing is then applied. If the puncture wound is very deep the man is instructed not to work for the remainder of the day, but many cases have returned to work at once. We usually advise patients to return in twenty-four hours for observation, even though they are having no trouble. When there is pain it is almost invariably near the dorsal surface of the foot between the bases of the toes over the point of the terminus of the puncture wound. This tenderness and pain seldom lasts more than 48 hours, and is usually not sufficient to keep the man from work.

The following statistics may be of interest:

Total number of cases	100
FOOT INJURED.	
Right	50
Left	47
No report	3
	100
PART OF FOOT AFFECTED.	
Sole	37
Ball	5
Ball base of little toe	14
Ball base of great toe	15
Ball base of fourth toe	1
Ball base of middle toe	24
Ball base of second toe	3
Arch of foot	1
	100
Total number of dressings	194
Average number of dressings per case	1.94
TIME LOST FROM WORK.	
	DAYS
2 cases	1
2 cases	2
1 case	2
2 cases	3
1 case	5
1 case	7
	7

In three cases of my series infection was present at the time the patient came to the Hospital,

due to the wound having been received twenty-four hours or more previous to the patient's reporting to the Hospital. In each case the wound was slightly opened, and the same method of treatment given as in the clean cases. The results were as follows:

	DRESSINGS
1 case	1
1 case	2
1 case	3

No time lost from work.

The infection in these cases was very slight, consisting only of redness and one or two drops of pus exuding from the wound. In no case of the hundred here reported, or other cases which I have observed, has tetanus appeared, even in cases treated at the general hospital, where sepsis has been marked.

CONCLUSIONS.

1. Nail puncture wounds of the sole of the foot are not dangerous and seldom cause infection if promptly treated, when caused by clean nails projecting from a board, as occurring in the building trade and general construction.
2. This type of wound does not produce tetanus, except possibly in very rare instances.
3. A simple and effective method of sterilization of puncture wound may be obtained by injecting the wound with pure tincture of iodine.
4. These injuries, contrary to general belief, produce very little disability and require few dressings.
5. Prompt treatment is essential in order to get the best results.

Book Review.

Encyclopedia Medica. Second Edition. Under the general Editorship of J. W. BALLANTYNE, M.D., C.M., F.R.C.P.E. Vol. IV. Edinburgh and London: W. Green & Son. 1916.

This fourth volume of the English edition of Ballantyne's medical encyclopedia contains the topics from ear to filariasis inclusive. The separate articles are the work of distinguished British physicians in addition to the editor. The chapter on ptosis is by the late Dr. A. Lockhart Gillespie, that on eugenics by Dr. C. W. Saleeby and that on favus by Dr. Norman Walker. The work is abundantly illustrated with full-page plates and many text cuts. The section on embryology by Dr. Ballantyne is particularly to be commended. Many of the articles are revised and rewritten. The sections on eclampsia, otosclerosis and eugenics are new. This volume continues the value of its series as a permanent encyclopedic record of medical knowledge.