

prepared for me through the kindness of Dr. Raymond Pearl of the School of Hygiene and Public Health.

From these tables we note that, so far as may be judged from the present statistics, the chances of the interruption of pregnancy are about doubled if the woman contracts both influenza and pneumonia, over what they are if she has influenza alone. It is the general impression of obstetricians that normally, and without known complications, the chance is about 1:5

TABLE 6.—DEGREE OF PROBABILITY THAT THE PREGNANCY OF A WOMAN WHO CONTRACTS INFLUENZA UNCOMPLICATED BY PNEUMONIA WILL BE INTERRUPTED

If the Influenza Attack Is in the:	Probability of Interruption	Chance of Interruption Is One in:
First third of pregnancy.....	0.390 ± 0.03	2.6
Middle third of pregnancy.....	0.212 ± 0.018	4.7
Seventh and eighth months of pregnancy	0.254 ± 0.018	3.9

that pregnancy will be interrupted. The data in Table 6 indicate that the normal chance of the interruption of pregnancy is not greatly increased by the presence of influenza alone. The chance of death from influenza complicated by pneumonia is obviously greatly increased by the interruption of pregnancy.

As this paper was about to be submitted for publication, two others appeared, dealing with the statistical relation of influenza to pregnancy. Bland¹ reports 337 cases. In a study of 200 of these he gives a mor-

TABLE 7.—DEGREE OF PROBABILITY THAT THE PREGNANCY OF A WOMAN WHO CONTRACTS INFLUENZA AND PNEUMONIA WILL BE INTERRUPTED

If the Influenza Attack Is in the:	Probability of Interruption	Chance of Interruption Is One in:
First third of pregnancy.....	0.644 ± 0.032	1.6
Middle third of pregnancy.....	0.429 ± 0.021	2.3
Seventh and eighth months of pregnancy	0.561 ± 0.022	1.8

tality of 49 per cent. This is somewhat higher than is yielded by our larger number of cases in which, as has been seen, we have a total mortality of 27 per cent. As to the effect of the disease on pregnancy, Bland reports the interruption of pregnancy in 58 per cent. of his cases, a figure considerably higher than that shown by our data, which is 39 per cent. in 1,211 cases falling within the first eight months.

Attention may also be called to the paper of Kosmak,² in which is given a summary of twenty-one

TABLE 8.—DEGREE OF PROBABILITY THAT A PREGNANT WOMAN WHO CONTRACTS INFLUENZA AND PNEUMONIA WILL DIE

If the Influenza Attack Is in the:	Probability of Death	Chance of Death Is One in:
First third of pregnancy.....	0.505 ± 0.034	2.0
Middle third of pregnancy.....	0.483 ± 0.021	2.1
Last third of pregnancy and at term.....	0.595 ± 0.019	1.7

hospital cases studied by him, in addition to several private cases. This author has kindly permitted me to use his data, and they are incorporated in the foregoing statistics.

RESULTS OF THE STUDY

It is assumed that the 1,350 cases on which these statistics are based were serious enough to require medical attention, and do not include the very mild

cases; nor do they include many of the cases falling within the first two months of pregnancy, when gestation might easily escape the knowledge of the physician. With these reservations, the results of the study are as follows:

1. Pneumonia complicated the influenza in about one half of the pregnant women here reported.

2. In the cases complicated by pneumonia, about 50 per cent. of the patients died, the mortality being somewhat greater during the last three months of pregnancy.

3. The gross mortality of all cases was 27 per cent.

4. Pregnancy was interrupted in 26 per cent. of the uncomplicated cases, and in 52 per cent. of the cases accompanied by pneumonia. In the cases ending fatally, abortion or premature labor occurred in 62 per cent. Thus, in 38 per cent. of the fatal cases the patient died without interruption of pregnancy.

5. The mortality of influenza was considerably higher (41 per cent.) in the cases complicated by abortion or premature labor than in those in which pregnancy was uninterrupted (16 per cent.).

INFLUENZA IN A NEWLY BORN INFANT

REPORT OF A CASE

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Through the kindness of Dr. David S. Hillis of the Chicago Lying-In Hospital, I was permitted to examine a newly born infant whose mother showed symptoms of influenza one day previous to labor. In order to make clear the condition of the baby, I will include the history of the mother's illness, furnished by Dr. Hillis.

REPORT OF CASE

History.—Mrs. J., aged 26, a primipara, developed symptoms of influenza late in the afternoon of December 27, when she was within two weeks of term. The symptoms were cough, fever, chilliness, headache and backache, with much soreness in the chest. She had had no sleep during the night.

Labor pains were first noticed at 6 a. m., December 28. Influenza symptoms continued. At 2:30 p. m. the temperature was 101.2 and the patient was in active labor: The fetal heart tones were more rapid than usual, being 150 throughout labor, but they were always regular and not of a character to indicate mechanical disturbance of fetal circulation. Labor continued normally, and at 12:30 a. m., December 29 the bag of waters appeared at the vulva and was artificially ruptured. The liquor amnii was markedly stained with meconium. At 12:46 there was spontaneous delivery of a boy, whose weight was 6 pounds, 12 ounces.

The infant's skin became grayish blue almost immediately after birth, and this condition persisted in spite of vigorous crying and clear air passages. The baby seemed vigorous at birth and breathed promptly after delivery. Auscultation of the baby's chest ten minutes after birth revealed many fine moist râles in both lungs, but there was no dullness on percussion. The following day, December 29, at 10 a. m., the baby was put to the breast and nursed well. Shortly after this, however, the breathing became labored and rapid. At 11 p. m. of this day, the respiration rate was 120. The temperature was not high, never exceeding 100, and falling to 97 F. The baby became more and more cyanotic. Respirations were superficial and rapid. Occasionally the infant uttered a weak cry.

The examination of the baby's blood made on the day before death showed a white count of 21,450 with a few

1. Bland, P. B.: Influenza in Its Relation to Pregnancy and Labor, *Am. J. Obst.* 79: 184, 1919.

2. Kosmak, G. W.: The Occurrence of Epidemic Influenza in Pregnancy, *Am. J. Obst.* 79: 238, 1919.

nucleated red and some large, pale white cells, not classified. The differential count was: polymorphonuclears, 58 per cent.; lymphocytes, large and small, 35 per cent.; large mononuclears, 2.8 per cent., and eosinophils, none.

December 31, the third day of the baby's life, finely crepitant râles were diffusely distributed over both lungs. Cyanosis was marked, and dyspnea extreme. The baby died at 6:05 p. m. with well marked symptoms of bronchopneumonia.

Necropsy.—The following day opening of the thorax revealed minute hemorrhages into the pericardium. The heart muscles were flabby and gave evidence of a parenchymatous myocarditis. On examining the heart valves, one could plainly see a beginning of acute verrucose endocarditis, involving the cusps of the tricuspid valve. Both lungs showed confluent areas of hemorrhagic bronchopneumonia. The spleen gave evidence of an acute splenitis with some edema and passive hyperemia. The kidneys showed no gross pathologic change, and the liver gave the appearances of cloudy swelling.

Prof. F. Robert Zeit of the Northwestern University Medical School, Chicago, examined the tissues and organs, and reported that "the cultures made from the organs of the baby which were submitted for examination showed many colonies of streptococci. Those made from the lungs showed in addition to the streptococci, which were present in large numbers, a few colonies of *Staphylococcus aureus* and *albus*. Cultures made from the spleen showed a few colonies of *Staphylococcus aureus* and *albus* and many colonies of streptococci. The examination of the organs shows: (1) lung: capillary bronchitis; (2) kidney: glomerulonephritis and necrosis (septic); (3) spleen: acute septic splenitis." Professor Zeit concluded that the cause of death was a streptococcus septicemia.

Subsequent History of Mother.—The mother had a mild course of influenza without obstetric or other complications, and left the hospital fully recovered, Jan. 13, 1919.

SUMMARY AND CONCLUSIONS

1. The obstetrician's report indicates that the baby was born prematurely, owing to a maternal influenza.
2. At birth the baby presented symptoms of respiratory infection.
3. The symptoms grew rapidly and progressively worse, leading to the death of the infant on the third day.
4. The necropsy revealed a widely disseminated infection, with minute hemorrhages and a hemorrhagic bronchopneumonia, as well as a septic endocarditis.
5. Streptococci were obtained abundantly from all of the organs examined.
6. We must assume that the baby became infected before birth.

Pain.—Pain is the oldest defense reaction, and potentially painful stimuli are the basis of all primitive reflexes. It is therefore of importance for higher development that these impulses should be rendered less effective in favor of those impressions which lead to more general and discriminative response. But, although they are controlled and even abolished, the mechanism underlying the production of pain must remain in full, physiologic activity, ready to play its part, should occasion arise, in the defense of the body against noxious influences.—Henry Head.

PANDEMIC INFLUENZA IN KOREA

WITH SPECIAL REFERENCE TO ITS ETIOLOGY

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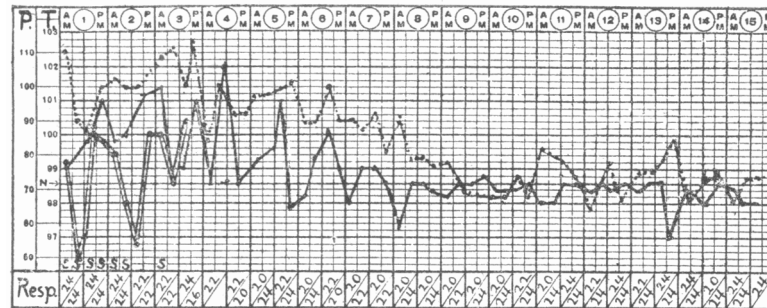
AND

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The great influenza pandemic made its appearance in Korea during the month of September, 1918. There seems to be no doubt that the infection came from Europe, via Siberia. The disease spread from north to south along the line of the Southern Manchurian Railway. The first cases seen by us in Seoul, the capital, were during the latter part of September. Before the middle of October the epidemic was at its height. The insanitary conditions of oriental life greatly enhanced the spread of the infection. At present it is impossible to estimate either the number of cases or deaths, as accurate information has not been received from the Japanese authorities. From one quarter to one half of the population must have been affected. Most of the schools were closed, owing to the high incidence among the scholars and teachers. As elsewhere the serious nature of the outbreak was

due to the frequent sequelae, bronchitis, bronchopneumonia and heart failure. The symptoms were those of ordinary influenza, but of a more exaggerated type. Headache, and pains and aches in the limbs, with a rapid rise of temperature to 104 or 105 were common symptoms. The temperature usually



Pulse (dotted line), temperature (solid line) and respirations of mother after delivery of child; and temperature (double line) of infant after birth; S, S, stools of infant.

dropped to slightly above normal within twenty-four hours if the case was uncomplicated. There was also frequent evidence of respiratory infection, which varied from a mild coryza to pneumonia in severity. In some cases there was vomiting and nausea, while in some very acute cases the patient became delirious at the climax of the infection. The symptoms in general corresponded with those reported from other countries.

With regard to transmission of the disease, everything would point to droplet infection as being of paramount importance. Numbers of mild carrier cases, a population of susceptible people, and a disease infecting the upper respiratory passages, causing a prolific secretion of infectious material, produce a combination which must result in a pandemic or widely spread epidemic.

While the number of cases reported are few, the bacteriologic findings are of considerable interest. All were typical cases.

Blood cultures were made from seven patients, and all proved negative.

The sputum was examined in fourteen cases, in three of which the acute symptoms had subsided before this was done. Direct smears were made to bring out the small and lightly staining influenza bacillus. After