Asbestosis bodies (fig. 2 *B*), first seen in the lungs of the guinea pigs that had inhaled dust for about two months, became more numerous and more distinctly segmented with increasing exposure.

The reaction produced in guinea pigs exposed for six and nine months did not progress significantly during a subsequent period of 35 and 37 months when the animals lived in a normal atmosphere (fig. 4). Between eight and 11 months after exposure ceased, the cellular reaction in the lung had been completely replaced by thin strands of fibrous tissue. At later periods the scar tissue was less in amount, but in the last animal killed, 37 months after discontinuing dust exposure, some fibrosis was still visible.

Reaction in Guinea Pigs Infected with Tubercle Bacilli at the Onset of Dust Inhalation.—Of the group of 40 guinea pigs infected with attenuated tubercle bacilli, R_1 strain,[9] at the time that dust exposure was begun, 31 died or were killed before the completion of two years of the exposure and were reported in the paper by Gardner and Cummings.[1a] Seventeen of these died from intercurrent pneumonia. Briefly, the results were as follows: Ten revealed some evidence of spread of the tuberculous process (fig. 5 *A*); in 6 of these it was confined to the lungs, and in the other 4 the abdominal viscera also were involved. Extension of the infection was first seen after seven months of dust inhalation; during the next 20 months more than half of the animals showed actively spreading tuberculosis, and in 3 of them small cavities had developed. During the last eight months no animals exhibited any evidence of active infection although in half of them the healed fibrous scars of previous spreads were obvious. The scars were more extensive than is characteristic of either tuberculosis or asbestosis alone.

The nine animals which were still alive after two years of dust exposure were killed at intervals during the following year. In four of them the primary foci of infection were healed with fibrosis and even calcification, and there was no evidence of progression (fig. 5 *B*). In the remaining five the tuberculous foci showed evidence of having previously spread locally; in four of them, by the time of autopsy, the foci were healed, with excessive fibrosis; in the fifth animal there was a generalized chronic tuberculous pneumonia in one lobe, and in the other lobes there were isolated primary tubercles, which were still active but had not spread.

Reaction in Guinea Pigs Infected with Tubercle Bacilli After Establishment of Asbestosis.—Twelve guinea pigs, after inhaling King's floats asbestos dust for 26 months, were infected with tubercle bacilli and then removed to normal air. Six of these animals died within seven weeks, five from intercurrent nontuberculous infection. The remaining six animals were killed at intervals up to 14 months after infection. The subpleural tubercles were no more numerous in the dusted animals than in the nondusted controls, but a considerable number were found in the depths of the lung about foci of asbestosis. The tuberculous component of the combined reaction showed only slight local extension about lesions in the lungs and tracheobronchial lymph nodes. Caseation was found in tubercles 1½ months old, but by 5½ months it had completely disappeared, leaving only scar tissue. Foci of fibrosis still persisted in the last animal, which was killed 14 months after infection.

Reaction in Rabbits.—Rabbits exposed to the asbestos dust for periods up to 19 months showed a foreign body type of reaction of low grade, but no fibrosis. Although their lungs contained particulate elements of the dust, fibers were not present, indicating that the upper respiratory mechanism of the rabbit is adequate to exclude fibrous foreign bodies. Two rabbits, after inhaling dust for six and 19

9. Steenken, W., Jr., and Gardner, L. U.: R_1 Strain of Tubercle Bacillus: Its Dissociation and Virulence of Variants in Normal and Silicotic Guinea Pigs, Am. Rev. Tuberc. **54**:51, 1946.