

increased labor, and a perfect circulation is maintained; soon, however, the strain becomes too great, and its contractions become excited and imperfect—it fails to empty itself completely at each systole. This condition increases, and the action of the heart becomes irregular. In such a state, the patient is liable to succumb at any moment from arrest of the heart in diastole, or by more gradual failure of the heart, aided usually by congestion of the unaffected parts of the lungs. To prevent such heart failure, or if failure has already set in, to restore the heart's power, so as to enable it to again effectively carry on the circulation, is the chief object of treatment in all severe cases of pneumonia. How can this best be done? This is best answered, I think, by reviewing the treatment carried out in the case of the girl in Ward 9, whom you have observed daily since she entered the hospital. She is 14 years old; has always been fairly healthy. One brother died of pneumonia, a week before she came here, and two of phthisis, within the last three years. Not a very cheering family history, certainly. Her home surroundings have been anything but healthy. When she came here the base of the lower lobe, and most of the middle lobe of the right lung, were hepatized; in a day or two the whole of the lower lobe of the left lung, also the part of the upper lobe overlapping the heart and great vessels, became consolidated. This chart shows well the state of the temperature, pulse, and respiration, and will remind you of her condition. The pulse soon showed signs of failure, becoming weak and irregular; the respiration often reached 60 to the minute; she was restless, sleepless, and showed well marked *subsultus*. Her condition showed imminent danger from failure of the right ventricle. She was ordered tr. digitalis ζ ss., with liq. strychniæ mv., to be repeated every six hours, until the pulse showed that the heart responded to its action. She took three doses a day two or three times; usually, only a dose morning and evening, and sometimes only one dose per day—the quality of the pulse being constantly taken as the guide to its administration. Alcohol was given also, to act as a general stimulant, and to prevent the heart from becoming too slow under the effect of the digitalis. The strychnine was added as being an ex-

cellent respiratory, as well as cardiac, stimulant. Her chest was encased in a layer of cotton wool, and over that, flannel, the whole fitting snugly and fixed over the shoulders. Poultices were not used because, in the first place, there was no pain, and, in the next place, because they do little good. They are cumbersome, tire the patient in changing them, and are not more useful than the cotton wool.

There was scarcely any cough; there was some diarrhoea, but not enough to call for interference. Milk was given every two hours as nourishment.

The heart responded to the digitalis, as shown by the fuller and slower pulse. The delirium soon disappeared, as did also the subsultus; she rested and slept better. Her condition was critical for several days, and, as shown by the chart, the fever continued much longer than it does usually in pneumonia, and its termination, though rapid, was not by crisis, doubtless on account of repeated invasion of fresh portions of lung.

In heart failure, from any cause, digitalis is our most effective remedy to restore the heart's power; but it must be given in full doses—full enough to give unmistakable evidence in the pulse, no matter how much is required. It causes the heart to contract more slowly and forcibly, emptying the right ventricle more completely. This gives the left ventricle a fuller supply, and also the arteries, as shown by the pulse; unless you get this effect on the pulse, a fuller and stronger one, your dose has been too small, and does little, if any, good. I have often seen 5, 10 and 15 min. doses given, but cannot recollect ever having seen any appreciable benefit result. Large doses given twice a day will do much more good than the same quantity in the same time in small and frequently repeated doses. The large dose, if the heart responds, will cause a complete contraction of the ventricles, and cause the pulse to come up fuller and stronger. This means not only that the heart itself, but also the nerve centres and tissues generally will receive a fuller supply of blood; therefore, their nutrition and ability for work will be proportionately improved; there will be better sleep, less delirium, larger capacity for nourishment, and increased eliminations by the kidneys. You cannot get