

digitalin and nicotine, all of which produce high pressure in the arterial system, are capable of bringing about definite arterial lesions. It has also been shown that certain bacterial toxins act on the vessel walls, either by producing degenerative changes, or else in stimulating the proliferation of certain cells.

There has been a considerable controversy as to the nature of these arterial lesions, whether they were the result of the toxic substances, acting directly upon the tissue cells, or whether their mechanical effect of increasing the blood pressure was capable of bringing about these changes.

Clinically, it has been noted that in the adult, the vessels of the more active organs show hypertrophy and sclerosis earlier than in the less active parts. In right-handed persons the radial arteries are considerably more sclerosed than those on the left side, and the reverse is true in left-handed people. Similarly, those whose occupation requires them to be constantly walking around and on their feet show the most advanced arterial changes in the vessels of the legs. These facts point to the prominent part that is played by work, in the production of arteriosclerosis, but still the question arises whether in a healthy vessel increased work alone can bring about sclerotic changes, or whether it is necessary to couple the factor with the effect of toxic agents.

It was my endeavour to throw some light on this question by experimental means. I chose healthy, nine months old rabbits to carry on the experiments. The first animal was treated for one hundred and thirty days, by suspending him by the hind legs for three minutes each day. The endeavour was to increase the pressure and the mechanical stress in the arteries, without employing any drugs. By inverting the animal, the pressure in the thoracic aorta and in the arch is decidedly increased over that which normally exists in the animal. At the beginning, the animal did not seem to be worried by treatment, but later on it showed signs of dyspnoea, and the heart beat was accelerated. Towards the end it was noted that the animal was much fatigued after each treatment.

At autopsy the following was noted:—There were no lesions in the vessels of the brain and no hæmorrhages had occurred in this organ. The carotid vessels had a remarkable appearance; the arteries were enlarged to about twice their size, and looked like sclerosed radials. There were distinct beadings on the vessels, which were most marked just above their origin from the aorta. These beadings were white in colour and encircled the vessels in transverse rings. Similar appearances were also present on the subclavian and brachial vessels. The