years. The surgeon who brought the lady to me had a very good case of instruments, and as he undertook, with Dr. Grabham, the charge of the patient after operation, I was able (although I had not extracted a cataract for about twenty years) to remove both lenses, and thus save this old lady the voyage to Lisbon; and I have lately heard from Dr. Grabham that the result of the operation has been quite successful.

CASE OF RUPTURE OF THE HEART FROM EXTERNAL VIOLENCE, WITHOUT PENETRATING WOUND.

By HENRY HANDFORD, M.B. Edin., M.R.C.S. Eng.,
Assistant House-Surgeon to the General Hospital, Nottingham.

ON Saturday, November 1st, a man, A. B., aged about 35, was brought to the General Hospital, Nottingham. A wheel of a light cart (empty) had passed over his chest. According to the statements of the men who witnessed the accident, he never spoke or moved after the receipt of the injury, but continued to make a moaning noise for a few minutes. When he was brought to the hospital, about ten minutes later, he was quite dead.

Post Mortem Examination, forty hours after death.—The body was well nourished; height about 5 feet 8 inches; muscular. Rigor mortis was very strongly marked. There was an incised wound about an inch long on the back of the head, and numerous syphilitic sores and scars on the penis, scrotum, and thighs. (He had been an in-patient of the hospital some months previously for syphilis.) *There was no trace of any wound or contusion on the chest, nor were any of the ribs broken.* On examination of the thorax, the pericardium was found much distended; and, on opening it, about eight or ten ounces of serum and imperfectly coagulated blood escaped. While examining the heart *in situ*, a rupture about three-fourths of an inch long was discovered on the posterior wall of the left auricle. The aorta was distinctly atheromatous; and there was thickening of the mitral, and less so of the aortic and tricuspid valves. The endocardium lining the left auricle was markedly thickened in irregular patches, and of an opaque yellowish colour. The muscular fibres of the left auricle, taken from the immediate neighbourhood of the rupture, showed, under the microscope, well-marked pigmentary degeneration; *i.e.*, an accumulation of pigment-granules arranged more or less in rows in the region of the nucleus; but no distinct trace of fatty degeneration, though the fibres were not well striated. The weight of the heart was eleven ounces and three-quarters. The lungs were engorged. The spleen was soft and large, and weighed eight ounces. The other organs were healthy. On examining the brain, a patch of yellow softening was discovered at the apex of the temporo-sphenoidal lobe. The contents showed, under the microscope, numerous oil-globules, compound granular corpuscles, and a quantity of amorphous granular pigment. There was no trace of injury to the brain or membranes corresponding to the scalp-wound in the occipital region.

REMARKS.—Wounds of the heart, arising from any cause, are not common; but, of all injuries, rupture from mechanical violence is the least common, as may be seen from the table given by Herr George Fischer (*Archiv für Klinische Chirurgie*, Band ix, Heft 3) in which, out of 452 cases, there were wounds from pointed instruments, 44; from pointed and cutting instruments, 260; from firearms, 72; *injuries from crushing*, 7; (spontaneous?) rupture, 69.

The cause of the rupture in this case was evidently compression of the chest-wall and of the contents of the thorax by the wheel of the cart; the heart giving way at its weakest part—*viz.*, the left auricle; that part being actually one of the weakest spots, and relatively the weakest, because it is the part of the heart which would be least supported by surrounding structures in the case of compression. The right auricle is more nearly in contact with the chest-wall, and would gain support from it; and, besides, it has an important safety-valve in the openings of the two great veins—the *venæ cavæ*—into it. When the distended auricle felt the effects of the pressure on the chest-wall, the contained blood would be unable to flow onwards into the ventricle, as the cavity of that would be kept closed by the same pressure; but it would have comparatively little difficulty in passing back again into the *vena cava inferior*, and so into the abdomen, which was free from pressure. In the case of the left auricle, it gains little support from the adjacent inner surface and root of the lung; and it has no safety-valve, inasmuch as the blood cannot escape into the ventricle, for the same reason as before; neither can it pass back into the pulmonary veins, because the lungs themselves are equally exposed to the pressure which would tend to drive the blood in the pulmonary veins onward into the auricle, and so further distend it.

I have taken no account of the muscular action of the heart itself, because it would be quite inconsiderable, when compared with the immense external force which must be exerted to cause such a lesion as the above.

The above theories may, perhaps, serve to explain the observed fact that, in ruptures from violence, the left auricle is most frequently affected; whereas in spontaneous rupture the left ventricle is by far the most common seat of injury. Thus, in five cases mentioned by Dr. Payne (Jones and Sieveking's *Pathological Anatomy*, p. 332), in which there was rupture of the heart from mechanical injury without penetrating wound, the left auricle was affected in three cases, the left ventricle in one, and the right ventricle in one. In spontaneous rupture, on the contrary, in one hundred cases tabulated by Dr. Quain (*Lancet*, April 6th, 1872), the left ventricle was ruptured seventy-six times; the right ventricle thirteen times; the right auricle seven times; the *left auricle twice*: the septum four times.

In spontaneous rupture, the coexistence of fatty degeneration of the muscular fibres is almost a *sine quâ non*. In rupture from violence, this is not necessary, and, indeed, it is usually not present; but, undoubtedly, the production of a rupture would be facilitated by it; and in the present case, I think, both from the appearance of the muscular fibres under the microscope and from the general state of the valves and endocardium, as well as from the consideration that the man was saturated with syphilis and had a patch of softening in the brain, that the muscular substance of the heart was far from being in a high state of nutrition and tone, and that the rupture was much facilitated thereby.

Death probably took place from compression of the heart by the blood effused into the pericardial sac; and the extreme rapidity of the death may, perhaps, account for the absence of marks of bruising on the skin of the chest.

A case somewhat similar to the above has been recorded, where a boy sustained a rupture of the septum ventriculorum from a kick from a horse, without apparent injury to the chest-wall.

A CASE OF ACUTE PHTHISIS FROM DIRECT CONTAGION IN A DOG.

By D. H. CULLIMORE, M.K.Q.C.P.

HAVING read with great interest the remarks on Tuberculosis as a Contagious Disease in the *JOURNAL* of May 8th, I send the following case, which contains many points bearing on this subject.

About six years ago, when I was acting as Residency Surgeon at Mandalay, a Bengalee servant, suffering from advanced pulmonary consumption, with copious expectoration, came under my notice. One of my dogs—a pariah—developing his natural talents as a scavenger, was, as I afterwards learned, in the habit of frequently visiting the house of the sick man, and lapping up the expectorated matter. How long this had been going on I cannot with certainty say; but a few days after the death of the man the dog appeared out of sorts, refused his food, rapidly emaciated, had a cough which increased quickly in severity, and was attended later on with a tenacious and glairy discharge from the mouth and nose. The stethoscope detected moist *râles* with rhonchus and sibilus over a greater part of the chest. These symptoms continued to grow worse for a week or ten days, when convulsive fits of about five minutes' duration, and occurring several times in the course of the day, made their appearance. These fits were of an epileptiform or tetanic character. The poor animal moaned a good deal and appeared in great pain, as he lay on his back reeling and kicking about. On the second day from the commencement of the fits, and about the twelfth from the beginning of the disease, there being but little hope of recovery, a large dose of prussic acid was given, which speedily proved fatal.

The *post mortem* inspection was limited to the contents of the skull and the chest, as these were the parts supposed to be more prominently diseased, and in both were found lesions to account for the symptoms during life, and their probable cause. Both pleuræ were adherent, the adhesions being recent; and the lungs were studded with softened patches, in varying stages of caseous degeneration, many of them containing muco-purulent matter, with which the minute and larger bronchi were also clogged. I did not notice the state of the bronchial glands. The brain did not show much signs of disease, and nothing similar to what existed in the lung. The membranes appeared thickened and congested, and on cutting them a good deal of serum exuded; there were no tubercular or cheesy deposits; the whole mass was uniform, and appeared softish, but I had no previous experience of the canine brain, and cannot speak with certainty.

REMARKS.—This case shows that the lung of the dog is rapidly susceptible to the influence of the *materies morbi* of tubercular lung-disease, even when introduced into the system *viâ* the stomach, which, according to von Cohnheim, is the slowest and least effectual mode of introduction; and it is the more worthy of notice, as he also states that dogs show little susceptibility, while rabbits and guinea-pigs have it in a remarkable degree. As European dogs are liable to degenerate in the tropics, and become an easy prey to disease, I may say that this dog was a native, had previously enjoyed good health, and, as the weather was not cold, I have no reason to believe that this acute affection was due to any other cause than contagion—the tubercular virus being fresh, and therefore in the state of greatest activity or supposed vitality. I regret that I failed to examine the contents of the abdominal cavity, as it would have helped to elucidate the order of organs attacked. The rapid emaciation is suggestive of mesenteric deposit and disease of the abdominal glands, and that such disease, if not of an earlier date, as the experiments of Cohnheim would lead us to believe, was at all events contemporaneous with that of the lung and pleura, and that both were long antecedent to lesion of the brain.

I am myself inclined to think that if the lungs were not the organs to suffer first, they were, judging from the extent of the disease, at all events the organs to suffer very early and most severely, which may be due to the greater facility for arrest and exposure which the anatomical formation of their capillaries affords. Be this as it may, this case is somewhat exceptional, from the shortness of the stage of incubation, the comparative less susceptibility of the animal infected, the mode of introduction, and the rapidity of the disease set up, with the probable sequence of the parts attacked: all of which must be set down to the somewhat prolonged introduction of fresh tubercular poison from the lungs of a person in the last, and presumed most contagious, period of phthisis. As it is open to say that the virus may also have been inhaled, I do not think this could have been so to an extent sufficient to account for the early severity of the lung-affection; for the other members of the family escaped *in toto*, and everybody knows that people are exposed to such risks every day without any immediate injurious results.

INTUSSUSCEPTION IN AN INFANT FOUR MONTHS OLD.

ON May 1st, whilst paying a visit to Mrs. C., I was told casually by her that her baby had been vomiting first milk, then curds with a greenish tint; the motions were green. The first attack of vomiting occurred very early on the morning of the 1st, the child being perfectly well when put to bed the previous evening. As the child had not quite recovered from vaccination, and as the anterior fontanelle was rapidly closing, I thought it was simply a little stomach-derangement due to the vaccination, or possibly teething, and advised a teaspoonful of castor-oil to be given. At twelve o'clock noon, on the 2nd, I was again asked to see the child, and found him considerably worse, with pinched expression and crying, being evidently in great pain, and with a quick pulse. He had soiled three napkins with blood and mucus, straining a good deal each time. He had vomited the oil ordered the previous day instantly, as well as his mother's milk, also some magnesia which was given him on the morning of the 2nd, before my arrival. On examining the abdomen, I discovered a hard lump to the left of the umbilicus, oblong in shape, measuring about two inches by an inch. The lump could also be felt *per rectum*, and gave one the kind of impression the os uteri gives to touch. I diagnosed intussusception, and ordered a grain of Dover's powder immediately, with warm outward applications to the abdomen. At 4 P.M., assisted by Mr. Roberts, I administered chloroform to complete anesthesia, and, with a Higginson's syringe, injected slowly fully half a pint of thin gruel, at the same time elevating the hips. The greater part of the large bowel, well distended, could be now felt externally, but no distinct trace of the lump. At 9 P.M., the child was easier; the gruel had been passed, but the lump could be felt in the right inguinal region, though less distinctly than at first; nothing could be felt *per rectum*. No more blood had come away, and there had been no vomiting; but, with the hope of entirely getting rid of the lump, a second injection was given during this visit, under chloroform as before. A grain of Dover's powder twice a day, brandy and water, and milk and lime-water, were ordered, all of which he took with difficulty. He vomited occasionally during the 3rd and 4th, but passed nothing after the injection *per anum*. He gradually sank, and died at 4 P.M. on the 4th. At the *post mortem* examination on the 5th, twenty-four hours after death, I found intussusception of the ileum into the caecum, a couple of inches in length, the part being deeply congested. The jejunum and ileum were greatly distended with flatus. The stomach and duodenum were small, contracted, and empty. Some of the coils of intestines were coated with lymph.

O. BOWEN, M.R.C.S.Eng., etc., Liverpool.

ABSTRACT REPORT OF LECTURES ON THE COMPARATIVE ANATOMY OF MAN. *Delivered at the Royal College of Surgeons of England.*

By W. H. FLOWER, LL.D., F.R.S.,

Conservator of the Museum, and Hunterian Professor of Comparative Anatomy in the College.

LECTURE VIII.—THE RACES OF NORTH AFRICA.

THE whole of the various populations inhabiting the portion of Africa north of the Sahara Desert, from the Atlantic coasts, as far south as the river Senegal on the west, to the Red Sea on the east, belong to a completely different type of mankind from that which we have been last considering; and, as before mentioned, the boundaries between the two types coincide remarkably with those of geological regions, as indicated by distinct characters of the fauna. As must naturally have happened, during the vast length of time during which the people of Southern Africa and the Negroes have occupied contiguous regions with (since the drying up of the Sahara Sea) absolutely no physical barrier between them, considerable intermixture has taken place along the frontier line, and even for some distance into the territories of each at certain points. In the last especially, the superior northern race has encroached far southwards; and the practice, which has existed from the most ancient times, of importing the Negroes into the northern country as slaves and soldiers, has given rise to a considerable modification of the type in certain districts. Besides the Negro element, which has thus partially and locally modified the character of the inhabitants of Northern Africa, at least two other adventitious elements, although with differences small compared with those last-named, appear to have come into the district and assisted to diversify the physical type. The evidence on which the first of these rests is rather slender; but, to account for the considerable number of individuals, especially in Morocco, who depart at least in colour from the prevailing North African type, and have fair complexions, eyes, and hair, an immigration of some Northern people is supposed. As all such immigrations within the strictly historic period, such as that of the Vandals (A.D. 500), have been on too small a scale, or too temporary, to effect such a permanent change in a considerable portion of the population; and as there is evidence from Egyptian monuments of fair people (the Tamahou) inhabiting North Africa, to the west of Egypt, at least 1,500 years B.C.; they have been associated with the builders of the megalithic monuments found scattered over the west of Europe and the north-west of Africa and Tangier, who probably invaded Africa by way of Spain. The invasion of the country by Semitic races from the East, the Phœnicians and Carthaginians, and, more recently, the Arabs, who overspread North Africa by way of the isthmus of Suez in the seventh and tenth centuries, and impressed the Mahomedan religion upon all these regions, rests upon surer historical evidence. The basis of the population of Morocco, Algiers, and Tunis are the Berbers, descendants of the Libyans or *Lebou* of the ancient Egyptians. An important section of these are the Kabyles of the French. They are mostly a settled and pastoral people. The Moors are mixed descendants of Arabs and Berbers, residing in towns. The Bedouins are the Arabs who still lead a nomadic life in the desert. There is much in common in the physical characters of all these people, and with the inhabitants of the south of Europe and south-west of Asia. They belong mainly to the group called *Melanochroi* by Professor Huxley.

The Berber type, which perhaps forms the basis of the population of all this region, as well as of Spain and the South of France, is thus described by Topinard, by whom it has been carefully studied. The height is about 1.5 *centimètres* above the mean—that is, they measure, on an average, 123.5 *centimètres*. The skin is white in infancy, but quickly becomes brown by constant exposure to the sun; the hair black, straight, and abundant; the eyes dark-brown; the skull dolichocephalic, having an index of 74.4; the nose leptorrhine, with an average index of 44.3; and the projection of the jaws moderately orthognathous. The face is less elongated, and of a less regular oval contour, than in the Arabs. The straight forehead presents at the base a transverse depression; the superciliary prominences are well developed; the nose is sunken at the base, often arched without being aquiline. The moral and social qualities of the Berbers are contrasted by Topinard with those of the Arabs, considerably to the disadvantage of the latter.