M. Bernard has found that in animals after section of the pneumogastric nerves in the neck, the lungs receive a larger amount of air than before the lesion. In the time that a healthy rabbit will absorb 20 cubic centimetres of air, a rabbit of the same size, in which both pneumogastric nerves are cut, will absorb 32 cub. centimetres. The pneumonia is caused by this exaggerated inspiration. The air-cells, over-distended, burst; extravascular succeeds the intravascular emphysema; and blood is effused into the parenchyma from the ruptured vessels. Inflammation then ensues. The older the animals the greater is the resistance of the air vesicles against the distension, and the pneumonia is correspondingly more rare in them.—Comptes rendus de la Soc. de Biologie, June 1853.

SURGERY.

PROFESSOR VIRCHOW ON THE GROWTH OF HEALTHY AND RACHITIC BONE.

In a recent number of his "Archives," (Band. V. Hft. 4), Virchow has published a very elaborate monograph on the above subject, and in giving a brief résumé of it, we shall glance at the observations recorded by other investigators.

In rachitic long bones, the curvature principally occurs in the shafts, the enlargement in the articular extremities, and the shortening in the epiphyses. Their diaphyses soften, while their epiphyses swell; and although the bones are unusually broad, they are also abnormally short. The swollen epiphyses occasion, in the joints, a peculiar protrusion of the extremities of the corresponding bones; and, at the sternal ends of the ribs, they form a row of protuberances, which can be felt under the skin. The sternal extremities of the ribs may be thus affected very early: Virchow has seen it occurring as early as the second month, and also in the sixth month, with rachitic affection of the tibial epiphyses and of the metatarsal phalanges. Ruß is of opinion that in very young children distortion occurs generally in the ribs and upper extremities; in those from three to five years old in the pelvis and lower limbs; and in the spinal column in those who are more advanced in life, (Gaz. Méd., 1834). This author also was the first who described carefully the internal structure of rachitic bone. He observed no clear boundary between the bone and cartilage at the junction-point of the epiphysis and shaft: he described the cartilaginous substance as bluish and semi-transparent, and apparently terminating irregularly in a whitish horizontal line. Underneath this lay an elastic, reticulated, and reddish texture, half an inch to one inch thick, resembling a fine sponge, and yielding blood on pressure. Between this and the medullary canal lay another spongy layer. Guerin, in 1847, described a fine structure of similar character, which he termed spongoid, with small isolated portions of cartilage scattered through it. These were small rounded bodies, of a bluish tinge, not firmly united to the spongy substance, and capable of being picked out by the point of the scalpel, leaving small excavations behind. Kölliker, in a series of more minute investigations, showed that the two layers—described by Bidder as the ossification-boundary of the epiphyses, viz.—a yellowish stratum next the bone, containing large cartilage cells arranged regularly in rows, and an outer bluish layer consisting of smaller cells, irregularly arranged,—existed also in rachitic bone, but that the former was enlarged, being two to five lines thick, while it is only half a line in healthy bone. The boundary line between the bone and cartilage was undulating and serrated, on account of the unequal ossification; and spicula of bone, one to four lines in length, projected into the cartilage. He also observed that the deposition of calcareous particles was deficient at the ossific boundary, and that nearly all the cartilage cells became converted into bone cells—before the matrix, (Grunds substanz), and independent of calcareous deposition—by the thickening of their walls and the formation of fine porous canals. "Hence," says Virchow, "rachitis would seem to
depend on certain changes occurring in the cartilage, before the regular commence-
ment, and without the immediate sequence, of ossification."

Meyer extended these researches, (see Müller's Archives, 1849, p. 359), and,
in the texture alluded to, described three substances. In the greyish trans-
lucent matrix he observed dim brownish-yellow places, which here and there
were reddish, and in these as also in the matrix there were whitish spots. The
projecting portions of the adjacent ossified bone gave to this dim yellowish sub-
stance a serrated margin. The whitish specks alluded to are completely ossified
bone; the dim yellow spots are those in which the formation of medullary
cavities (markräume) is proceeding; and the greyish gelatinous mass is the carti-
lage, changed in the formation of its parent cells. Medullary-space formation,
according to this author, occurs by the development and subsequent softening of
fibres, and the cartilage cells at their circumference, becoming thickened in their
walls and finally devoid of nuclei, amalgamate with one another and also with the
surrounding matrix, leaving behind only their roundish and stellate cavities—so
that the part assumes the appearance presented by bone deprived of its earthy
constituents by muriatic acid. In the greyish substance he found primary and
secondary cartilage cells, both larger than ordinary; and also unusually broad and
dark intercellular tissue. Ossification occurs in it only in scattered patches, as
it were experimentally.

Virchow's own observations confirm, in most respects, the researches of these
authors; but he looks upon these structural changes we have described as occurring
only in the advanced stages of rachitis.

He believes that bones increase in length by pure endogenous growth of the
inner surface of the cartilage of the epiphyses, a new layer being always
produced as soon as the former one becomes ossified. Ossification first
commences in the intercellular substance, and in the thick-walled capsules
of the cartilage cavities; part of this calcareous deposition becomes afterwards
softened, and thereby are formed the medullary hollows of the spongy bone-sub-
stance. The following arrangement is found at the articular extremity of a long
bone:—first, next the joint there is the ordinary cartilage; next comes the layer
formed by endogenous growth, composed of large cells next the bone, and smaller
ones externally, which have a bluish-transparent, oftentimes almost gelatinous
appearance; next, there follows a yellowish, opaque layer of a finely reticulated
texture, consisting of cartilage cells, surrounded by calcareous rings, which are
being metamorphosed into bone cells; and finally, we have the spongy sub-
stance of the bone, with its spaces filled with very vascular medulla. The layer
in which the cartilage cells are surrounded by bony rings is not, nor does it be-
come true bone; for medullary spaces are formed in it, by the softening of more
or less of its calcareous matter, which gradually increase in size, and between
which there remain intervening cancelli. These peculiar alterations of the
originally simple cartilage render it difficult to discover the true origin of the
lacunae or bone-corpuscles. We are certain that although all the cartilage cells
become surrounded by calcareous rings, they are not all transformed into osseous
corpuscles; and it has therefore been doubted whether the lacunae ever originate
from these bodies at all. In normal ossification the problem might be easily
solved by actual observation, were it not that the deposition of calcareous matter
in the cartilaginous matrix obscures the process in its cells. In rachitic bone,
however, this is not the case.

When we make a longitudinal section of a long bone, in the first stage of
rachitis, we find the medullary canal bounded, at either extremity, by a layer of
fine cancellated tissue, the medullary cavities of which are filled with a dark red
marrow, principally composed of small granular cells, which Virchow looks upon
as formed by the endogenous growth of part of the original cartilage cells. The
cancelli of this tissue are, for the most part, made of true bone. In it, Virchow
has observed calcareous bodies of a round or ovoid shape, with central hollows,
which were loosely attached to the surrounding substance, and corresponded to
cartilage cells.
Next to this comes a yellowish layer, (the "spongoid" of Guerin), wherein ossification is visible, advancing in the somewhat striated cartilaginous substance lying between the cavities of the large cell-groups. The whole of this ossifying texture presents a very uniform reticulated appearance, enclosing cartilage cells in its bony network. External to this, and next the cartilage, Virchow describes a structure wherein ossification extends further than the intercellular substance to the thickened capsules of the cartilage-cells, forming incomplete bony rings, which encompass nearly two-thirds or three-fourths of the cartilage-cavities, leaving their peripheral surfaces open and free. This appearance can be best seen by a longitudinal, and the reticulated structure by a transverse section of the bone.

Next to this "spongoid" tissue lies a bluish layer, composed of large cartilage cells, a transverse section of which presents a fine reticulated structure, like that of the ossifying parts, although no trace of calcareous deposition can be found within its meshes. The intercellular substance here is yellowish, and has a granular and striated appearance: the cartilage cavities are lined by thick, double-contoured capsules, and contain pale, slightly granular, nucleated and nucleolated cells. In this layer also vessels and vascular canals are formed. The matrix, in certain directions, becomes distinctly striated, fibrillated, and at the same time, yellowish and opaque; and, in the direction of its striae, the cartilage cells become elongated, spindle-shaped, and relatively smaller, their nuclei increase, and probably latterly divide; and there is gradually formed a soft fibrous texture, through which are scattered numerous small cells, with dark, solid, and comparatively large nuclei. On the addition of acetic acid, this texture becomes dark, and juice expressed from it gives, with that re-agent, the ordinary mucous precipitate. In fact, says Virchow, "the cartilage has become changed into a sort of mucous texture." This metamorphosis not only occurs at the boundary-line of ossification, but also at the perichondrium; and both rows unite, in certain parts, with one another, forming oblique anastomoses by connecting loops. Vessels soon appear in these directions, which form tolerably large canals in the interior of this mucous structure. Virchow was unable to determine whether these vessels originated from the prolongations of vessels previously formed, or occurred by direct canaliculisation of the cartilage; but he was able, very distinctly, to observe their gradual advance beneath the perichondrium of the costal cartilages. The perichondrium here appeared swollen in certain parts, by the development of a dim opaque yellowish body at its inner side. After some time this body enlarged and formed a solid conical peg, (zapfen), in the interior of the cartilage. Acetic acid showed this to consist of narrow elongated cells, embedded in a striated cartilaginous matrix. In all of these bodies, Virchow distinctly observed the loopings of vessels.

Next to this layer there is the cartilage of the epiphysis, which, in its normal condition, in young children, is traversed by large reddish transparent vessels, which enter it from the vascular parts surrounding it on all sides. In many cases we see, in the epiphyses, points of commencing ossification, which consist of cancellated texture containing red medulla, and are generally surrounded by a fine spongoid layer, similar to that which lies at the boundary of the diaphyses. Between these bony centres and the large-celled bluish layer at the line of ossification of the shafts, there lies a layer of cartilage of the ordinary appearance.

In somewhat older children, and in more advanced stages of the disease, the arrangement and connections of the structures described, remain essentially the same, but their size and irregularity undergo remarkable alterations. Virchow has seen this advanced stage in children five weeks old. Ossification, in such cases, which hitherto has advanced regularly, begins now to proceed more slowly, and the boundary-line of the young bone becomes very irregular. The swollen part at the extremity of the bones, when seen in transverse section, is found to consist of the bluish texture, extending outwards in an oval form, by endogenous growth. Its aggregated layers, which correspond to the long axis of the bone, vary in distinctness; and between them are found numerous rounded and elongated me-
dullary spaces, which are reddish when blood-vessels are present, and yellowish or brownish-yellow when these are absent. A whitish-yellow line lies internally next the bone which corresponds to the layer of young bone; and between this and the bluish layer intervenes a red irregular margin, broad in some places, narrow in others, consisting of red points clustered together, which are recently formed, and vascular medullary spaces. Various scattered ossific points found here, especially in the intercellular portions of the matrix are finely striated, are composed of delicate fibrillae, and terminate in a thicker, stronger, shining layer, which forms the enveloping capsule of the neighbouring cell-groups. Homogeneous calcification occurs in this marginal layer, and the intercellular spaces become infiltrated with a finely granular yellow mass. But osseous deposition does not occur in this marginal layer alone, for it goes on also, in many places, within the cell-groups—principally at the points of junction between their individual cells. A thin stripe of calcareous matter often intervenes between two cells, while these are still bounded on both sides by an unossified layer. At other times ossification commences in the internal capsules, (leaving the dividing bridges within quite unaffected), and calcareous rings are formed which give the whole structure a uniform reticulated aspect.

(To be Continued.)

ON THE INOCULABILITY OF SECONDARY SYphilis.

The Imperial Academy of Medicine in Paris having decided against the truth of the doctrine of syphilisation, after the discussions of which an abstract is given in the February number, proceeded at subsequent meetings to consider whether or not secondary syphilis is inoculable.

M. Velpeau said, that the transmissibility of secondary syphilis was not a new question. Hunter had first directed special attention to the subject, and had decided in the negative; but his opinion met with little favour at the time, although of late years it has found a good many partizans in France. M. Velpeau’s own opinion was, that not only those who have had chancres or a virulent gonorrhoea, or who are descended from syphilitic parents, are liable to the constitutional affection, but that all or almost all the manifestations of secondary syphilis, are contagious. His opinions were founded on several grounds:—1st. Universal belief. It was scarcely possible that what had been believed for centuries could be absolutely false. No doubt numerous fabulous modes of contagion had been described, as, for instance, by the breath or saliva, but still he believed the general belief to be founded on truth. 2d. The experience of medical men in different countries. Although it be conceded that in many of their observations there is a certain amount of error, still there must be some truth in such a mass of facts coming from such various sources. 3d. M. Velpeau would appeal to his own observations. He had begun by trying to inoculate animals with syphilis, and in this he had constantly failed; and he might observe that, in spite of what had been said to the contrary, he did not consider it proved that this inoculation was possible. But he had observed secondary symptoms inoculate themselves. Thus, a young man who had had chancres on the penis six months before, was affected with a small vegetation on the glans. M. Velpeau kept the prepuce in close apposition to this for some days, and a similar vegetation made its appearance in the latter situation. He had since made the same observation frequently, and had observed that condylomata (plaques mouches) were often propagated in the same way. These considerations had first established in the mind of M. Velpeau the possibility of the transmission of secondary syphilis. Other facts, to which he should immediately allude, had confirmed him in this opinion. Those who maintained the opposite opinion, were inconsistent with their own doctrines. They admitted hereditary transmission, but not the direct transmissibility of secondary symptoms. But what is hereditary transmission but the transmission of a constitutional affection? Another important proof of the truth of his opinion, was drawn.
from what is seen in the case of nurses or infants affected with secondary syphilis. In many instances it had been observed that the unhealthy nurse could affect the healthy infant, and vice versa. Among other cases, M. Velpeau mentioned the following: A family consisted of a husband, wife, and four children, all healthy. The woman took to nurse an infant covered with an eruption, and suffering from sore throat. The family being poor, the same drinking cup was used by all. Soon afterwards, one of the daughters became affected with symptoms similar to those of the infant, and died; the nursling died; the mother and two other daughters were attacked with sore throat, and were cured by mercury. On the other hand, many cases might be quoted where a nurse affected with constitutional syphilis has transmitted it to her nursling. As to inoculation, M. Velpeau, without approving of it, would not absolutely reject it, though he considered it a mistake to suppose that it could furnish much reliable information. If it it succeed, it only proves what hardly requires proof; if it fail, it does not prove that the affection was not syphilitic. Supposing that primary affections are always and easily inoculable, it does not follow that secondary affections should be inoculable with equal facility. But it had been shown in a number of cases that secondary affections could be inoculated. He would only refer to the observations of Wallace in England and Waller in Germany. For these reasons he believed that secondary syphilis was contagious.

M. Lagneau considered it undoubted that secondary symptoms were contagious; but, from the very fact of their being consecutive, their contagious power was not so strong nor so easily proved as in the case of the primary. In fact, in general, secondary symptoms could not be inoculated; sometimes, however, they might, though they were propagated readily by sexual intercourse. M. Lagneau referred to the case before the Academy, in which the individual had inoculated himself with pus from a secondary ulcer on the tonsil; the inoculation was followed by the characteristic pustule. The fact of the inoculability of secondary syphilis takes away from inoculation all its importance as a diagnostic agent.

M. Ricord regarded this question as most important, both with reference to pure science, to public and private hygiene, and to legal medicine. He had begun the study of syphilis without any preconceived views; much had indeed been already done by Hunter, but his doctrines had been established on his own experience. From clinical observations and experiments, he (M. Ricord) had proved, 1st. That it is only pus from a chancre, taken at a particular period, which is inoculable and capable of reproducing chancre. 2d. That a bubo, the result of absorption, following a non-indurated chancre, furnished like the chancre itself inoculable pus. 3d. That a bubo, considered venereal, may not furnish inoculable pus; because, the pus surrounding the affected gland may have been employed, not the purulent matter of the gland itself; because, the bubo may have been merely sympathetic; or, because the bubo may have been idiopathic, and have been mistaken for a direct manifestation of syphilis (Bubon d'emblee). 4th. Constitutional symptoms, whether secondary or tertiary, have not been found capable of inoculation. 5th. Syphilitic affections which are not inoculable are not contagious. 6th. Simple gonorrhcea, not symptomatic of urethral chancre, is not inoculable. Since he had established these doctrines, they had been confirmed by numerous other observers. Those who maintained the inoculability of secondary syphilis appealed to clinical observation and experiment. It was singular, however, that they had so few proofs to refer to; their cases were evidently exceptional; whereas if their opinion were correct the number should be immense, so many individuals being affected with secondary syphilis who take no precautions against infecting others. Many of the observations brought forward on the other side, left much to be desired. It was often very difficult to determine whence the first symptoms had been derived; and even supposing that patients have no desire to deceive, how can they always describe with accuracy the condition of the other party? In most cases it is no doubt easy to distinguish between primary and secondary affections, but sometimes it is exceedingly difficult. What is called condyloma, and which is considered as invariably a secondary affection, is sometimes the
remains of a chance which has altered its form, but which is still a primary affection and is still inoculable. Here, then, is a source of error in diagnosis. Before saying that secondary affections are inoculable, it must be shown that the diagnosis was precise and free from all possible sources of error. This M. Ricord did not consider to be the case with regard to the observations which had been brought forward. He himself had attempted very frequently to inoculate secondary symptoms, but had invariably failed. With regard to the proof derived from the alleged transmission between nurses and infants, the facts stated were quite at variance with his own experience; and M. Ricord referred to others who had enjoyed the best means of observation, and who were on this point completely of his own opinion. M. Velpeau had told them of the contagiousness of vegetations, but in M. Ricord’s opinion vegetations were not syphilitic at all, and it was anything but proved that they were contagious. The same cause which produced them at one point might have given rise to them at others. As to considering the possibility of the hereditary transmission of secondary syphilis as a proof of its contagious nature, he was surprised to hear M. Velpeau make such a statement. On this principle it might be maintained that phthisis, cancer, gout, or insanity, are contagious. M. Ricord said he did not wish to systematise and maintain that secondary symptoms were absolutely neither contagious nor inoculable, but in order to make him change his opinion, much stronger proofs than had been hitherto brought forward would be required.

M. Gilbert did not lay much stress on experiments as proving the inoculability either of primary or secondary syphilis; he would only trust to clinical observation. Drawing his knowledge from this source, he felt justified in making the following assertions:—1st. The primitive symptoms of syphilis are multiple; 2d. The regular progress of development of secondary symptoms, which some have endeavoured to establish, is far from being constant. 3d. Secondary symptoms may exceptionally show themselves contagious, under particular circumstances of intimate cohabitation. 4th. Inoculation should not be employed for any purpose, even as a diagnostic agent, seeing that its results are not to be depended on.

M. Roux acknowledged the services which had been rendered by M. Ricord, and stated that he agreed with him on many points, but still as to the contagiousness of secondary symptoms he sided with the others.

On the conclusion of this discussion, which occupied the greater part of six meetings of the Academy, a vote was not taken on the subject; but it was decided that at some future period a committee should be appointed to inquire into, and if possible resolve, the question of the transmissibility of secondary syphilis. As yet, however, no steps have been taken in the matter.

**DR LONDRES ON INSECT-LARVAE UNDER THE HUMAN SKIN.**

According to this author, there are often found in Surinam, below the skin, both of Europeans and negroes, the larvae of an insect called there the “mosquito-worm,” which resembles closely the Oestrus Bovis. These occasion furunculoid circumscribed tumours, the size of a nutmeg, which discharge a bloody serum through a small opening at the surface. These tumours are very painful, and, if not subjected to treatment, they form open ulcers. The treatment adopted is blowing tobacco smoke into the tumour through the aperture, and thereafter squeezing it, which causes the larva to crawl out of its centre. Dr L. found them rapidly cured by free incisions. He cannot yet determine whether these larvae belong to the Oestrus Bovis species, or whether they are different,—the Oestrus Hominis. Howship mentioned to the Medical Chirurgical Society of London, the case of a soldier from Surinam, who had the Oestrus Hominis in his shoulder, and of a youth in Santa Anna, in South America, in whose serosum they were discovered. Baron von Humboldt also saw Indians in South America, whose abdomens were covered with small tumours, which he conceived to be due to the subcutaneous presence of the larvae of the Oestrus.—Nederland Weekbl. July 1852.
BLUMHARDT ON THE USE OF COLLODION IN BURNS.

This fluid, when applied to burns, promotes healing and prevents suppuration. Blumhardt has tried it, with great success, in three cases, one of them caused by explosion of gunpowder, and two by the ignition of spirits of wine, where the breast, neck, face, and hands were all severely scorched. Collodion was applied to the skin an hour and a half after the accident, by a hair-pencil; the redness, pain, and swelling, were thereby diminished, and the patients soon experienced no inconvenience save the tension occasioned by the firmly adherent pellicle. The inflammation completely subsided, and the recovery was rapid. He considers the collodion to act beneficially in two ways; first, by affording a safe protective covering to the sensitive cutis, and second, by giving a uniform support to the part, and relieving the capillaries from all undue distension.—Würtemburg Corresp. Bl. No. 56.

Part Fourth.

MEDICAL NEWS.

EDINBURGH OBSTETRICAL SOCIETY.

Session XII.

INDIAN MIDWIFERY—NOTES ON, BY DR WISE, H.E.I.C.S.

Dr Simpson read the following communication from Dr Wise, author of the learned "Commentary on the Hindoo System of Medicine."

Remarks on the Treatment of Women during Pregnancy and Labour by the Asiatics.

The vast countries which the Mahommedans conquered extended from Spain to China, embracing a portion of Europe and a large part of Africa and Asia; in all of which countries they have left traces of their manners and customs. Even among the Hindoos, so prejudiced in favour of their own habits, considerable changes have taken place, from the mingling of these two great races. In both, the treatment of females during parturition resembles so much each other, that the following remarks may be applied to either; although some differences in unimportant local customs may be found in parts of these extensive countries.

The Koran has always been considered by the Mahommedans as the standard to regulate their religious, civil, and scientific pursuits. One of its peculiarities is its robbing the female of her rights, and placing her in a degraded position in society, and from their ignorance, the minds of their offspring remain uncultivated, and are filled with prejudice and superstition. This want of confidence in females induces the Mahommedans to employ ignorant and prejudiced menials during the period of parturition, by which both the mother and offspring suffer. So frequently are their lives sacrificed, and so convinced are they of the superior method of proceeding of European practitioners, that they often require their assistance in the hour of difficulty and danger. On this account I had frequent opportunities of witnessing their method of treatment, and the tenets which they inculcated both among the Mahommedans and Hindoos, of which the following are a few particulars:

From the time that the female becomes pregnant, various religious ceremonies and superstitious observances are used to promote the welfare of the foetus, and to prevent the influence of the evil eye. This is so much dreaded, that during pregnancy, the woman is rarely allowed to go abroad. At the same time, her peace of mind, happiness and comfort must be promoted, and gentle exercise enjoined with attention to diet, which is varied with the period of utero-gestation. On the fourth month curdled milk should be