

It showed some activity. The loss of potential due to emanation alone was 3.1 volts in one hour.

(b) The radio-activity of the gas.

Observations made at Ganeshpuri on the 23rd December 1910.

1,081 cm³ of gas were collected and examined.

From these figures we find that the loss of potential after 15 minutes due to emanation alone is 16.9 volts.

Here $l_1 = 1100$ cm², $l_2 = 277$ cm³, $l_3 = 1214$ cm⁵, $V = 0.018$ volts.

Hence we find for the saturation current 0.63 Mache-units.

Note.—We need hardly mention that the observations given here are only some few specimens of a large set of observations.

Conclusion.—From our experiments it is certain that all the hot springs which we examined contain radium emanation and salts of radium. The radio-activity of the hot springs in the Thana district is not very great, but the springs are radio-active, and contain salts of radium in solution. *The radio-activity of the thermal waters at Lasundra is much greater, that of the springs at Tuwa quite extraordinary. As far as we could ascertain from scientific periodicals* there are only four out of the large number of thermal springs in Austria which show a greater radio-activity than the springs at Tuwa, viz., at Gastein three springs out of 18 and at Joachimsthal (in Bohemia) one out of three.* We hope to examine in the course of time the radio-activity of all the hot springs in the Bombay Presidency. It will be the task of medical men to study the sanitary efficacy of the same springs.

A PRELIMINARY NOTE ON BLOOD PRESSURE.

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In the *Indian Medical Gazette* for May, 1911, I noticed in the correspondence column some questions by Major Elliot asking for information with regard to the average blood pressure among Indians, and whether it is the same as it is in Europeans. As this is a question which has lately come very much more into prominence in connection with Major Rogers' valuable work in the treatment of cholera, it seemed to me it would be of interest to study it among the population met with in an ordinary district jail.

The instrument used in estimating the blood pressure was one of the modifications of the Riva-Rocci Mercury Sphygmomanometer, namely, French's made by Down Bros. It is a most useful modification, because by a simple arrangement

the mercury is prevented from being upset and the instrument is therefore always ready for use and can be carried anywhere without risk.

The average blood pressure among healthy European males is said to vary between 125 and 135 m.m. Among Indians it is stated by Major Rogers in his book on *Cholera and its treatment* that "the normal blood pressure is only from 100 to 120 m.m.," but what the average is among healthy adult males I have never seen stated.

Prisoners in jail are classified, according to their health as good, bad or indifferent, and this classification has been followed in the following observations.

In my first series the blood pressure was estimated in 100 good health prisoners, the great majority of them being adult males between the ages of 20 and 40 years.

In all cases the observation was made with the individual in the recumbent position, free from all strain, and on the right arm. Of the hundred prisoners in good health the average blood pressure worked out at 117.9 m.m. The highest blood pressure in this series was 144 m.m. in a man aged 35 apparently in good health free from any arterial or renal disease, height 5 ft. 3 ins., weight 117 lbs.; the lowest was 99 m.m. in a man aged 35, height 5 ft. 3 ins., weight 101 lbs. This was the only case among the good health men in which the pressure was below 100 m.m. The highest pressure actually found was 145 m.m. in a man aged 40, height 5 ft. 3½ ins., weight 115 lbs., who had been admitted in good health. Examining him again about two months later the blood pressure was found to be 154 m.m. A more thorough examination was now made, and it was discovered that there was distinct thickening of the arteries and though there was nothing abnormal detected in the heart, there was a distinct trace of albumen in the urine, specific gravity of which was only 1005. Evidently this man should not be classed among those in good health.

My second series numbered 85 prisoners in indifferent and bad health, the age limit in this case reaching far above 40 years up to 60 years and perhaps in one or two instances nearly 70 years, here we find the interesting fact that the average blood pressure in these men works out to be 121.7 m.m. nearly 4 m.m. higher than that of the men in good health.

This is easily explained by looking through the list and noticing the number of instances when the blood pressure is higher than normal, and when on further examination some pathological factor has been found to account for it, such as thickened atheromatous arteries, chronic renal mischief, and so on, especially the first mentioned condition. Curiously enough also I notice on looking through the results that it is the men entered as in bad health who are found in so

* *Phys. Zeitschr.*, Vol. VI, p. 692.

many cases to have an abnormally high blood pressure, thus among seventeen men examined on one occasion there were seven in bad health with blood pressures as follows, 163, 168, 103, 161, 118, 113, 155.

The most interesting case in this series was that of a man aged 60 who on examination was found to have a blood pressure of 204 m.m. the highest noted. On questioning him as to the state of his health, he complained greatly of headaches, giddiness, and palpitation, and on further examination he was found to have very marked atheromatous changes in his arteries, a hypertrophied heart with loudly accentuated second sound at the aortic area, and his urine contained a faint but distinct trace of albumen which is always present. He has been under treatment since admission, a period of 2 months, with some improvement in his general health and with some alteration in his blood pressure, the lowest obtained being 171 m.m. Evidently this man is living on the brink of a precipice.

The lowest blood pressure in the second series was found in a man, aged 48, in indifferent health, it was only 90 m.m.

In the whole series of 85 men, there were only four with a blood pressure below 100 m.m.

At the same time that the blood pressure was recorded a careful note was also kept of the height and weight of the men at the time of the observation and on calculating the average of these they work out as follows:—

Average weight of 100 good health prisoners	... 114·9lbs.
Average height of ditto	... 5 ft. 3½ in.
Average weight of 85 indifferent and bad health prisoners	... 103·9lbs.
Average height of ditto	... 5 ft. 4 in.

It will be extremely interesting to see if these figures which I have given, correspond in any way with those which have been or which will be perhaps worked out by others in other parts of India.

My thanks are due to Sub-Assistant-Surgeon Lalit Mohan Adhicary for the very valuable assistance which he gave me in making these observations.

A Mirror of Hospital Practice.

A CASE OF ACUTE HEPATITIS WITH INDICATIONS OF PUS FORMATION, SUBSIDING UNDER IPECACU-ANHA TREATMENT.

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THE following case of acute hepatitis is of interest inasmuch as it entirely subsided under

ipecacuanha treatment in spite of hectic fever, rigors, and profuse sweats, indicating the formation of pus.

H. G., Eurasian, male, age 45, admitted into hospital on the morning of June 16th, 1911.

Complains of not having felt well for about a week previously. On the 11th instant (5 days previous to admission) he first sought medical advice, complaining at the time of a feeling of uneasiness and weight on the right side and upper part of abdomen. From this day until admission into hospital he was treated in his own house, a record of his temperature being kept. He was ordered conjees, given magnesium sulphate and an effervescing mixture internally, whilst antiphlogistine was applied over the hepatic region. In spite of this treatment the patient's condition did not improve, with the exception of some decrease of pain, and he was therefore sent to hospital on June 16th.

State on Admission.—Patient complains of pain and uneasiness in right hypochondriac and epigastric regions, and states that he has also suffered from pain in the right shoulder. Says he cannot sleep at night. He is unable to lie on his left side, as if he does so the pain in his right side becomes worse. Has had severe sweats at night and early morning. For the last few days he has had a shivering fit and fever daily. No cough. No history of alcoholism or dysentery obtainable. Bowels well opened as the result of a purgative. Face somewhat drawn. Tongue covered with thick yellowish fur. Palpation of abdomen reveals some tenderness in right hypochondriac and epigastric regions, but tenderness is not excessive. Lower margin of liver can just be felt below costal margin. Spleen not palpable. Slight enlargement of liver ascertainable by percussion. Liver dullness, commences above at the 6th rib in front, and at 7th rib in mid axillary line.

Examination of chest reveals nothing abnormal anteriorly, but posteriorly resonance is diminished over base of right lung, whilst the respiratory murmur is markedly diminished from the inferior angle of right scapula downwards. No pleural friction or other adventitious sounds heard. No displacement of apex beat of heart. Mensuration in hepatic region shows circumference on right side to be ½ inch larger than that of left side. Urine, *s.g.*, 10—20 and no albumen, no sugar, no bile. Motions—No amœbæ and no ova found.

Blood Examination.—Absolute leucocyte count not made, but smear shows very decided leucocytosis.

Differential leucocyte count:—

Polimorphonuclear	... 79
Large mononuclear	... 7
Small mononuclear	... 12
Eosinophiles	... 2