

The fire bars (*a*) are of iron piping of two-inch diameter, built into the side walls two inches apart—a small iron bar being built into each side wall over the draught hole, to carry the fire bars.

Two lengths of two-inch iron piping (*b*) are built into the side walls to carry the inner brickwork. Iron bars are built into the front and side walls to carry the lower roof. The fire is started and attended to through an opening in front (*c*), one foot three inches by one foot, this opening being covered by a hinged cover (*d*). The refuse to be burnt is fed into the incinerator through an opening in lower roof (*e*), one foot six inches by one foot, this opening also being covered by a hinged iron cover (*f*).

Two drums are used, one for extracting solder and the other exclusively for fat, the latter having a jacket of three-inch brickwork built round the under side of the drum to prevent the fat becoming ignited in the drum. This jacket of brickwork is carried on iron bars (*g*) built into the main brickwork. The tins, fatty refuse, etc., are fed into the drums through the iron or tin hoppers (*h*), which are fitted into the upper side of the drum. A tin lip (*i*) is built in under the open end of the drums to carry the solder and fat into the receptacles that receive them. The lids of the drums are kept in place by iron rods (*k*), supported on hooks built into the back wall.

Current Literature.

THE following notes are from abstracts prepared by Lieutenant-Colonel James, of the Ministry of Health:—

Resuscitation in Accidental Asphyxia.—Attention has recently been directed to the use of an appliance called a "lung motor" for resuscitating persons who are apparently drowned or asphyxiated in fire or sewer gas accidents.

Two fire brigade stations in London have appliances for this purpose made by the Life Saving Devices Co., Chicago. It fits in a box about 3 feet by 1 foot, and is a simple pump apparatus for administering a mixture of oxygen and air, the oxygen being carried compressed in a cylinder. Dr. Leonard Hill has pointed out that, to use this apparatus safely, aspiration must be allowed to take place by natural elastic recoil and not by the suction of the instrument. An appliance made by Messrs. Siebe, Gorman, Ltd., of 127, Westminster Bridge Road, is designed to comply with this requirement. When using such an instrument the larynx must be pressed upon so as to occlude the gullet, otherwise the stomach may be blown up. But according to Dr. Hill a special apparatus is not necessary: it is sufficient to allow the oxygen from a cylinder to pass through a flexible tube into the mouth of the patient while artificial respiration is being performed in the usual manner.

Risks from Exhaust Petrol Vapours.—The plan of heating motor ambulances by means of the exhaust pipes from the motor is apparently attended with some risk. If the joints of the pipes are not air-tight, the escape of petrol vapours inside the ambulance is liable to cause accidents. Cases of poisoning in ambulances, motor cars, "tanks" and in unventilated garages and tunnels have been reported in the following Journals.

The mechanism of poisoning is not simple, but it is said that the lesions observed on post-mortem examination are the same as those produced by carbon monoxide poisoning (recent references, the *Lancet*, June 19, 1920; *Journal of State Medicine*, October, 1920, p. 306; *Lancet*, April 5, 1913, p. 975; January 27, 1917, p. 161; October 12, 1918, p. 494; *Presse Médicale*, 1917, p. 23; *Lancet*, December 4, 1920, p. 1156, Tank Exhaustion).

Food and Drugs. Factors Influencing the Toxicity of Arsenic Preparations.—Roth has ascertained experimentally that shaking a solution of certain of the organic arsenic compounds for a minute or longer brings about a marked increase in their toxicity. The presence of air is necessary to induce the added toxic action (*United States Public Health Reports*, No. 35, September 17, 1920, p. 2205).

The "Nem" System of Nutrition.—Professor Pirquet has adopted a new unit of energy value of food in place of the calorie, namely the "nem," which is the energy value of one cubic centimetre of milk (0.66 calorie).

A small cupful of milk is equivalent to about a "hectonem" = 100 nem which is the working unit for practical purposes (*British Medical Journal*, October 30, 1920, p. 666).

Influenza.—Relation of different strains of influenza bacilli. By Howard H. Bell. Agglutination and absorption tests show that the influenza bacillus represents a heterogeneous group of organisms. A person may carry in his throat three different strains of the organism at the same time. (*Journal of Infectious Diseases*, vol. 27, No. 5, November, 1920).

Types of Pneumococci in the Throats of 100 Normal Persons.—By Jacob Meyer. This article contains the results of observations after an epidemic of influenza (*Journal of the American Medical Association*, November 6, 1920, p. 1268).

Tuberculosis.—Tuberculosis in primitive tribes and its bearing on the tuberculosis of civilized communities. By S. Lyle Cummins. While Brownlee suggests that the "young adult" type of tuberculosis and the "middle age" type are both infections with a modified bovine bacillus, Cummins thinks that both are due to infections with the human type. He considers that the "young adult" type is the tuberculosis of virgin soil, the "middle age" type that of sensitized soil. He notes that these differences of interpretation have much more than a theoretical importance. If both forms are infections with a modified bovine bacillus effort should be concentrated on ensuring tubercle-free milk; but if the chief enemy is the human type of germ the chief effort should be towards earlier diagnosis, better isolation, sanatorium treatment in incipient stages, etc. (*International Journal of Public Health*, No. 2, vol. i, September, 1920).

"The Argentine Method of Treatment" with extremely minute doses of tuberculin (dilutions of from 1 in a 100 million to 1 in the figure with 15 zeros) is described by Viton in the *Journal of the American Medical Association*, September 4, 1920, p. 708.

Tuberculosis. Change of Incidence in Austria.—Analysis of a report on this subject by Dr. Siegfried Rosenfeld, Director of Health Statistics in the Volksgesundheitsamt.

Preliminary.—It is so easy not, perhaps, to "cook" statistics but to select them, that when we are concerned with a highly contentious question it is well to try to determine the compiler's personal equation. Rosenfeld's report does not show any trace of the *ad misericordiam* taint, he does not seem to be trying

to paint the picture in lurid colours. Some sentences reflect severely on the folly of the late imperial and royal government, and there are faint indications of an anti-bacteriological bias. On the whole, however, the case seems to be fairly put. The statistical treatment is competent but not highly skilled and most of the diagrams are unnecessary.

Field Covered.—That part of the old empire which is now an independent State, viz., Upper and Lower Austria, Salzburg, Steiermark, Carinthia, the Tirol and the Voralberg; particulars respecting Vienna are especially full.

Results.—The changes in mortality from tuberculosis which have occurred in Austria outside the capital are complicated by the existence of internment camps (the inmates of which died "like flies") and by rapid change of distribution of population, but the following general conclusions seem to be warranted. After excluding the districts containing internment camps, the increase in tuberculosis was greatest and began soonest in industrial districts. Such exceptions as there are rather tend to prove the rule; thus in the Voralberg the tuberculosis mortality was rather less in 1918 than in 1916, appreciably less in 1916 than in 1914. Here the women normally employed in home textile industry passed to better paid extra domestic war work in factories.

The data relating to Vienna are far the most complete:—

In 1912, 2,725 women (excluding non-residents) died of all forms of tuberculosis; in the seven following years the deaths were 2,700, 2,635, 3,004, 3,543, 4,469, 4,729, 5,018. In term of the year 1912 pulmonary tuberculosis increased 91.4 per cent, tubercular meningitis 20.9 per cent, and other forms of tuberculosis 95.6 per cent.

The increases at ages are shown as follows: The comparison is between the average of the years 1918-1919 and the average of 1913-14, and the table gives the percentage increases:—

Ages	All forms of tuberculosis	Pulmonary tuberculosis
1-5	26.7	97.1
5-10	95.3	175.6
10-15	115.2	118.0
15-20	107.5	107.8
20-25	81.0	82.8
25-30	48.6	42.5
30-35	51.5	53.5
35-40	68.2	75.1
40-45	129.7	122.1
45-50	111.2	107.1
50-55	144.2	132.8
55-60	152.2	160.3
60-65	126.8	123.8
65-70	136.4	138.5
70	96.1	108.4

It will be noticed that the proportionally greatest increases are in children of school age and the women over 40.

It is of interest to correlate these changes with the economic conditions. We may note the following similarities and differences with regard to Viennese and English conditions. Both in England and Austria the employment of women in war industries increased and probably culminated in 1917. In both, the year 1918 is affected by the influenza. In Austria the food supply deteriorated down to the end of the series of years. In England the tuberculosis mortality of women increased throughout the war, but in 1919 improved to approximately the pre-war standard except at ages between 15-20 and 20-25. In Vienna 1919 is slightly better than 1917 at 15-20 and at 25-30, but very much worse at most other ages.

The deaths from causes other than tuberculosis have also increased, but

proportionally much less; at some age groups the contrast is striking. For instance, the deaths from all other causes in 1917 and 1919 (1918 was excluded owing to influenza) were 10.2 per cent fewer than in 1913-14, while the deaths from tuberculosis were 109.1 per cent in excess.

Dr. Rosenfeld concludes his report with a general discussion of aetiology. His argument takes the following lines. The pre-war decline of tuberculosis mortality, which was as evident in Austria as in this country, was mainly a consequence of improved general sanitation and improved nutrition due to better economic conditions of the working classes—the second factor being the more important. The great and progressive increase of war time was due to failure of economic resources. This is why it first and most seriously affected the urban districts. It did not at first so seriously affect women in the prime of life, because the higher wages earned in war industries compensated the rise in price of provisions, while the rapid fall of the birth-rate diminished the risk of death of infected married women.

The solution of the tuberculosis problem both in Austria and elsewhere is not to be attained by specific measures even were they practicable (a calculation shows that the provision of sanatorium beds for the segregation of cases would involve an utterly impossible scheme, even were the national finances normal) *but by feeding the population.*

Biochemistry: Alcohol und Präzisionsarbeit. (Alcohol and Accurate Work.) U. Töttermann. *Skandin. Arch. f. Physiol.*, 1920, 40, 107.—The observations were made on the author. The test work was the threading of sewing needles. The number of needles which could be threaded in a given time (twenty minutes) were counted. The amount of alcohol consumed was 100 cubic centimetres of a 25 per cent solution, i.e., 25 cubic centimetres of absolute alcohol. This was taken at 11 p.m. The test work was done the next morning at 10 a.m., i.e., eleven hours after the administration of alcohol. The amount of alcohol consumed corresponds to that taken by a moderate drinker. But as the author himself points out, it was taken in a rather concentrated form and on an empty stomach. An alcohol-free period of fourteen days was followed by an alcoholic period of ten days, this again by an alcohol free period of nine days and an alcoholic period of ten days.

The experiments show a distinct and progressive diminution during the alcoholic periods in the amount of the test work done. This was partly due to a diminished general capacity for the test work and partly to fatigue setting in more rapidly. It was noted too that during the alcoholic periods a trembling of the hands and a fatigue of the eyes developed while the test work was being done.

Biochemistry: Das Verhalten der Körpertemperatur bei mechano-therapeutischer Behandlung und gymnastischen Freiübungen. (The Behaviour of the Body Temperature during Mechano-therapeutic Treatment and Gymnastic Exercises.) D. Rancken. *Skandin. f. Arch. Physiol.*, 1920, 40, 92.—The paper is part of an extended investigation on the effects of certain movements on the fundamental body functions, such as temperature, carbon dioxide excretion, blood distribution and so on. The present paper records the observations on changes in the temperature produced by two different kinds of movements, namely gymnastic exercises and what the author calls "mechano-therapeutic movements" such as massage, deep breathing with rolling of arms, etc.

The temperature was measured by means of a bolometer, the resistance coil being introduced into the rectum and remaining there throughout the period of observation. It was connected with the galvanometer by means of a long wire, so that the free movement of the subject was not interfered with.

Gymnastic exercises produce a distinct rise of the temperature (0.1—0.7° C.) which returns rapidly to the normal when the subject rests. The mechanotherapeutic exercises have a remarkably slight effect on the temperature, which showed a maximal rise of only 0.07° C.

Radiology and Electrology: Anatomie normale et pathologique du squelette du pied au point de vue de ses lésions traumatiques. (Normal and Pathological Anatomy of the Skeleton of the Foot, from the Point of View of Traumatic Lesions.) Delitala. *La chirurgia degli organi de movimento*, 1917, 1, 95. (*Journ. de radiol. et d'électrol.*, 1920, 4, 89.)—From personal research on the cadaver and on radiograms collected for fifteen years at the Rizzoli Institute the author tries to throw light on the following points:—

- (1) The best positions for radiological examination of the skeleton of the foot.
- (2) The normal relationship between the different bones, more especially between the astragalus and the calcaneum.
- (3) The shape, number, and frequency of supernumerary bones of the tarsus.
- (4) The radiographic criteria for a differential diagnosis between the morbid processes entailing atrophy or osseous destruction, and the neoplasms strictly so-called.
- (5) The radiographic criteria for a diagnosis of old and recent fractures, more especially in bone injuries due to war wounds.

It is necessary to use a constant technique if one would obtain images in which the anatomical relationships shall be constant. The author recommends the dorso-plantar position (the opening of the compressor-tube parallel to the axis of the skeleton of the foot) and the externo-lateral position (outside edge of the foot on the plate, the sole and the compressor-tube being strictly perpendicular to the sensitized surface).

On normal radiograms obtained in this way it is possible to fix constant points of pseudo-atrophy, which should be known, so that they be not confused with areas of true destructive injuries. The supernumerary bones of the tarsus have special characteristics which enable one to differentiate them from fractures of the astragalus and calcaneum; nevertheless, in certain cases it is extremely difficult to distinguish between the os trigone and a fracture-dislocation of the posterior apophysis of the astragalus.

Tuberculosis, according as it assumes a synovial or an osseous form, gives rise to a generalized atrophy or simply to a limited destructive lesion. Its commonest situations are found about the calcaneum and astragalus. Radiography has often revealed the existence there of foci the size of a pea in a spongy bone. There are clearly defined differences between neoplastic, osteomyelitic and tuberculous forms.

Tuberculous lesions of the scaphoid are quite distinct from those due to Köhler's disease. Fractures of the bones of the tarsus may be classified according to their radiological characters. Some are very easily recognizable, while others (longitudinal fractures of the astragalus and calcaneum, incompletely consolidated fractures) very often escape the most minute investigation. One of the pathognomonic characteristics of fractures of the calcaneum is the presence of unusual shadows which are superposed on the normal structure of the calcaneum. This is due to enclosing of dense cortical bone in the centre of the spongy substance and to the large amount of callus thrown out.