the size of a bean, bearing little secretion on its surface. The hardness and varnish-like gloss were extremely characteristic. The lymphatic glands were nowhere enlarged. This was excised, and a microscopic examination by Ziegler confirmed the diagnosis. Fourteen months afterwards there had been no sign of constitutional syphilis. She was then inoculated with the secretion of a hard chancre. Ten days later an ulcer appeared, which in time became indurated. A second inoculation was performed 23 days after the first. The lymphatic glands became implicated in due course, and six weeks after the second inoculation a roseolar rash appeared. If the indurated ulcer excised from the labium was really a hard chancre, this case goes to prove the correctness of Jullien's conclusions.

PERISCOPE OF STATE MEDICINE.

By James Allan Gray, M.D. Edin., F.R.C.P.E.

THE CONDITION OF THE ATMOSPHERE IN ROOMS WARMED BY HOT-AIR STOVES (Dr Rabot).—M. Rabot describes the movable calorifer, or hot-air stove, of Dr Godefroy of Versailles, and gives the results of his analysis of the air of rooms warmed respectively by this and by the ordinary American stove. Dr Godefroy's apparatus consists of a stove which has no communication with the air of the apartment in which it stands, but which is connected with the chimney by means of two horizontal pipes, one of which brings in the air to the hearth of the stove, and the other carries off the smoke. Two currents are thus formed in the chimney, an upcast one carrying off the warmed air and impurities, and a downcast bringing in cold air from without. M. Rabot then gives the following details from a report read by him to the Académie des Sciences:—

"1. The movable hot-air stove called the American, was charged with 10 kilogrammes of coke, and acted with little draught for two hours (little draught ought to be regarded as the normal mode of working of these stoves). The apparatus used in the analysis was that of MM. Dumas and Boussingault, consisting of a series of U tubes for absorbing water and carbonic acid, with Liebig's tubes for the absorption of carbonic oxide and sulphuretted hydrogen. A graduated aspirator enabled the quantity of air passed through the apparatus to be accurately estimated. 1000 litres of air at 15° C. and 760 mm. of pressure (=59° F. and 29.8 inches of pressure) gave the following results:—

| Substance                          | By Weight | By Volume |
|-----------------------------------|-----------|-----------|
| Carbonic acid, by weight          | 1 gr. 20 c.| 639 c.c.  |
| Carbonic oxide, by weight         | 0         | 00.       |
| Sulphuretted hydrogen, by weight  | 0         | 0229.     |
|                                   | by volume | 15 c.c.   |
2. The place, having been completely aired during twenty-four hours, was again shut afresh, and warmed by means of Godefroy's stove. Another series of tubes were set up in the same circumstances as the former. The stove, having been charged with the same quantity of coke of the same supply, acted with little draught during the same time; and 1000 litres of air at 15° C. and 760 mm. of pressure gave—

| Component                  | Weight   | Volume |
|----------------------------|----------|--------|
| Carbonic acid              | 0 gr. 30 | 159.8 c.c. |
| Sulphuretted hydrogen      | 0        | 0      |
| Carbonic oxide             | 0        | 0      |

The ordinary movable or American stove, in the normal condition of its action, diffuses a part of the products of combustion in the apartment. With the modification of M. Godefroy the atmosphere of the room has only the amount of carbonic acid normally found in the air. With the American stove not only is the proportion of carbonic acid quadrupled, but sulphuretted hydrogen is also present. It is probable that if the trial had been made for a longer time, and the American stove had been set on at first with a full draught, and then with a little draught, traces of carbonic oxide would have been found, but no sulphuretted hydrogen, owing to the latter gas having been burned. The calorifer, being set on from the first with a small draught, burns quietly, only a part of the carbon undergoing combustion, and warming the rest. It is then that traces of sulphur compounds are disengaged. With full draught, on the contrary, the temperature is raised, and the compounds of sulphur, when they exist, burn completely; but if one turns the key to lessen the draught, the supply of oxygen is diminished, and carbonic oxide becomes formed. It is this which constitutes the danger of the American stoves. The modification adapted to this apparatus by Dr Godefroy appears thus very successful from a hygienic point of view; and analysis demonstrates its excellent results."— *Annales d'Hygiène*, January 1882.

**Poisoning by Aconitia (Dr Tresling).**—A medical man, Dr M., prescribed for a patient a 0.2 per cent. solution of nitrate of aconitia, of which from 20 to 60 drops were to be taken every hour. The patient took 5 drops on the first day. On the following day, after taking 20 drops, he experienced a burning sensation in his mouth and throat, and almost immediately vomited. He repeated the same dose on three occasions, but vomited after each. At length, in the evening, he swallowed 20 drops more, which he retained, but all night he felt oppressed and intensely cold, although he experienced internally a burning feeling. To show that these symptoms could not be ascribed to the solution of aconitia, Dr M. swallowed from 50 to 60 drops of it. The toxic effects began to show themselves at the end of a quarter of an hour. Four hours later Tresling found Dr M. pale, with pulse small and irregular, but not
quickened, with skin cold, and pupils contracted. He experienced a sensation of burning in the mouth, and of constriction from the throat to the abdomen. He complained of precordial distress and of heaviness and feebleness of his extremities, especially of his legs. The pupils dilated suddenly and vision was lost, but it returned on the pupils becoming again contracted. Stimulation of the pharynx produced vomiting, which afterwards occurred spontaneously. The vomited matters consisted of the débris of ingesta coloured red. Soon after this convulsions and snoring respiration appeared. Then M. complained of deafness and buzzing seated alternately in either ear. After a subcutaneous injection of ether the pupils became again dilated and vision was lost; and again there was vomiting, with convulsions violent and prolonged. A second injection of ether was given, but the patient could not be recalled to consciousness, and the dilated pupils refused to react to light. The respiration became slow and laborious, and, in spite of the employment of electricity, became more and more difficult. The heart failed gradually, and M. died five hours after taking the poison. At the autopsy there was found great pallor of skin and muscles, while the internal organs were greatly congested, the intestines being notably hyperæmic, excepting the colon and rectum, which, like the bladder, were in an anemic condition. The lungs, which were adherent to the thoracic wall, were very much congested; they contained both old and recent tubercles and a small cavity. The heart was in diastole; the right cavities contained a little fluid blood. The meningeal vessels were distended, and here and there some subarachnoid effusion was to be seen. In the ventricles was found a sero-sanguinolent fluid, and on the choroid plexus an exudation of blood. The blood was everywhere fluid, and of a bright cherry-red colour.—Schmidt's Jahrbücher, B. 189, No. 2, 1882, quoted in Annales d'Hygène for January 1882.

**Distribution of Arsenic in the Various Organs after Poisoning by Arsenical Compounds.**—Professor Ludwig, in studying this vexed question, employed the organs of persons poisoned by this drug, and of dogs of 40 pounds weight which he had first submitted to acute or chronic poisoning. In the case of a man who had died from the administration of arsenic, Ludwig analyzed the liver, brain, and kidney, 600 grammes of muscle from the thigh, and 255 grammes of the tibia and fibula, and arrived at the following results:—

| Organ      | Grammes of Arsenic Contained |
|------------|-----------------------------|
| Liver      | 0.00338                     |
| Brain      | 0.00004                     |
| Kidney     | 0.00515                     |
| Muscle     | 0.00012                     |

which means that the proportion of arsenic contained in the same weight of brain, liver, kidney, and muscle is represented by 1, 84, 129, and 3. The principal results obtained by the analysis of the
organs of men and animals can thus be summarized. In poisoning, acute or chronic, arsenic ought to be found in the bones. If the doses employed have not been fatal, arsenic is to be found in the bones long after the administration of the poison has been stopped. In the case of a dog killed twenty-seven days after the last dose had been given, arsenic was recovered from the bones; but in the case of another dog killed at the end of forty days none could be so obtained, although the liver yet contained a notable quantity of the poison. It is a mistake on Sonnenschein's part to consider that the search for arsenic in the bones is very difficult. The brain contains but a small proportion of arsenic either in acute or chronic poisoning; the liver, on the contrary, always contains a very large proportion, as in like manner do the kidneys, which in acute cases are held to contain more than the liver. In the muscles there is but little found, but always more than in the brain. In chronic poisoning, where recovery takes place, it is the liver which longest retains arsenic after its administration has been stopped. In the case of a dog killed forty days after taking the last dose, a larger proportion of arsenic was found in the liver than in the brain, while the bones and muscles did not contain more than a trace. The assertion of Scolosuhboff, who maintained that the brain was the organ in which arsenic accumulated in cases of acute poisoning, is certainly erroneous.—Schmidt's Jahrbücher, B. 189, No. 3, quoted in Annales d'Hygiène, January 1882.

**Chronic Poisoning by Arsenic.**—MM. O. Caillol de Poncy and Ch. Livon, in a paper on this subject, after remarking on the improvement in health and condition noticeable at first, and the subsequent diarrhoea, debility, and death, occurring in animals subjected for a long time to the action of arsenic in small doses, call attention to the post-mortem appearances especially of the lungs and mesenteric glands. At the autopsy all the muscles, including the heart, are extremely pale. The liver, lungs, and kidneys present to the naked eye all the characters of fatty degeneration, and, in particular, the mesenteric glands are much hypertrophied and fattily degenerated. MM. Cornil and Brault have already noted the fatty degeneration of the liver, lungs, and kidneys in acute poisoning, but nothing has yet been said concerning the mesenteric glands. In the lungs the authors have not found anything really altered except the alveolar epithelial cells, which are in complete fatty degeneration. Certain alveoli are completely filled with degenerated cells, which end by entirely blocking up the alveolus, and at length the whole pulmonary lobule. It is this which explains the whitish islands seen on the surface and in the interior of the lungs. **Mesenteric Glands.**—On opening the abdomen of an animal which has succumbed to chronic poisoning by arsenic, these glands appear like great yellowish-white masses, which to the naked eye have a caseous aspect. On a more extended examination
of the surface, and by the aid of the usual reagents, it is easy to see that the peripheral portion, especially the follicular region, is in certain parts completely invaded by fatty degeneration. This degeneration is not limited to the follicles, but invades the gland in large patches both peripherally and centrally. The degenerated parts are full of large cells, granular and fatty, as shown by osmic acid. Here, then, there takes place a process similar to that which occurs in the lung. Under the influence of small and successive doses of arsenic, the endothelial cells which the gland contains undergo fatty degeneration. This invades the most active part of the gland, the follicular quarter, which is that first attacked; then the degeneration, extending bit by bit, involves, if not the whole gland, at least the greater part of it.—Ac. d. Sc. 94, 1366, 1882, quoted in Journal de Pharmacie, Sept. 1882.

Poisoning by Daphne Mezereon.—Dr Shaw records an instance of recovery from poisoning by the ordinary cultivated mezereon. The case occurred in the person of a little girl aged two and a half years, and the noticeable features were, the absence of pronounced gastric or intestinal symptoms, the presence of marked narcosis, and the recovery after the very large number of berries which had been eaten. The only gastric symptom mentioned is, that before being seen by the doctor the child had been sick, but had not vomited much. The emetic of sulphate of zinc given by way of treatment brought up merely some quantity of clear fluid. The narcosis, which was the most marked symptom of the case, and is by no means found in all cases, was here speedy and profound, coming on, apparently, within an hour of the time the fruit had been eaten, and continuing more or less for several hours. The number of berries swallowed must have been over fifty, as one-half of the first evacuation contained twenty-four seeds—each berry has but one oval seed—and a few more seeds were seen in a subsequent motion. Irritation of the mouth was noticed, “the lips looking as though they had been burnt, and the inside of the mouth being swollen;” but as this was only observed after the administration of the brandy and ammonia given for the coma, it is possible that the berries may not have been the cause of the irritation, although the plant is known to possess irritant properties, the berries being acrid, and the bark, when moistened and strapped to the skin, being a good rubefacient.—British Medical Journal, vol. ii. p. 521, 1882.

Poisoning by Atropine Treated by Pilocarpine.—Dr Ludwig Tanzler communicates the two following cases of poisoning by the introduction of a solution of atropine into the eye:—1. A little girl of four years, affected with an interstitial keratitis of both eyes, was treated by the introduction of a one per cent. solution of atropine into the eyes. At the end of twelve days she had heat of the head, dryness and swelling of the throat, and a dry cough. The treatment was suspended, but soon afterwards resumed, the
symptoms having disappeared rapidly. One morning the child awoke with a temperature of 40°-5 (104°-9 F.), and the pulse at 140, but regular. The skin presented here and there large patches of a vivid red colour, irregular in shape, not elevated, but disappearing on pressure, and not itching. The laryngeal mucous membrane was greatly injected and swollen; there were headache and dry cough. This occurred on the 11th February. On the following day the pulse was still quicker than natural, and the temperature elevated. The eruption, which had become paler, reappeared in the evening, and again on the next day subsequent. The cure was gradual, and the atropine was resumed on the 18th. On the 6th March the child had again an elevation of temperature, an eruption on the face, irregular respiration, tonic and clonic convulsions, accompanied by loss of consciousness, ptosis of the left side, difficulty in swallowing, and suppression of urine. These symptoms disappeared completely at the end of two days. Subcutaneous injections of pilocarpine were employed. 2. A child of eight years was treated for two months by an injection into each eye of a three per cent. solution of atropine. In the beginning of June the child commenced to have embarrassment of speech, disorder of ideas, and confusion of words. When brought to the clinique on the 9th June it was found that the breast, the gluteal region, and the lower limbs were the seat of a scarlatiniform eruption, whilst on the neck and the upper limbs were some red spots, disappearing on pressure, and arranged in the form of small islets. At the same time excessive mydriasis, dryness of the pharynx, and burning thirst were present. The child looked idiotic, but was very much excited, and made continuous purposeless movements almost choreic in appearance; it recognised no one. Three successive injections of 0-02 grammes of pilocarpine (1⁄3 of a grain) were given to it, and then two others of 0-01 gramme (1⁄3 of a grain). After the last, the skin of the face and trunk became moist, but were again dry by the end of ten minutes. At length the child fell asleep, and on the following day was quite well. The intelligence was restored completely.—Schmidt's Jahrbücher, Band 193, No. 1, quoted in Annales d'Hygiène for September 1882.

Query.—Did the poisoning in these cases occur from the direct absorption of the atropine by the conjunctiva, or from its absorption by the skin denuded of cuticle by the artificial eczema which is sometimes induced by the long-continued employment of atropine as a mydriatic?

Ptomaines, or Cadaveric Alkaloids, in Urine, Milk, and Animal Fluids.—Of late a good deal of attention has been given to the condition of the urine in various wasting and infectious diseases, with the object of ascertaining whether there existed in it, in these circumstances, bodies of the nature of ptomaines. Selmi (Reale Accad. dei Lincei, Band v. pp. 174–243, quoted in the Journal
of Chemical Society of London, 1882, p. 741) has extracted from the urine of a patient affected with progressive paralysis two poisonous bases, one resembling, but not identical with, nicotine, the other, found in much smaller quantity, having the odour of conine. From the urine of a patient suffering from rheumatic tetanus he obtained in very small quantity a poisonous base also resembling conine in odour; and from other urines other poisonous bases more or less indefinite in character. Bouchard (Revue Médicale, Lancet, 1882, vol. ii. p. 455) has in like manner extracted from the urine of cases of typhoid fever, "infectious pneumonia," and "infectious pleurisy," substances having all the characteristics of ptomaines, while from normal urine and from the urines of patients suffering from other diseases, such as pulmonary emphysema and valvular disease of the heart, no such substances could be got. On the other hand, however, it is well to remember that M. Pouchet (Lancet, 1882, vol. ii. p. 456) has affirmed that the presence of alkaloids may be constantly demonstrated in normal urine, and that milk (Journal de Pharmacie, Sept. 1882, p. 205) contains a substance the nature of which is ill defined, but which gives all the reactions of ptomaines; while Paterno and Spica (Gazzetta, 1882, Journal of Chemical Society of London, 1882, p. 741) has shown that fresh blood and fresh egg albumen give, with the usual reagents for alkaloids, exactly the reactions given by solutions containing ptomaines.

Detection of the Ptomaines.—Mr H. Beckurts states that as yet he has not been able to discover any general reagent which will distinguish the ptomaines from vegetable toxic alkaloids. He gives as a general reaction for the detection of all alkaloids the following formula:—0.01 gram of the alkaloid is dissolved in 5 c.c. acidulated water, and to it are added two drops of 10 per cent. potassium ferricyanide solution and a drop of very dilute neutral ferric chloride. Morphia and colchicine act on this solution directly, the solution becoming dark blue from the reduction of the ferricyanide and consequent formation of Prussian blue. In the case of aconitine, brucine, conicine, digitaline, nicotine, strychnine, papaverine, narcine, codeine, and veratrine, the reaction is less powerful, the colour being at first green-blue, and precipitation occurring later. Atropine and neutral picrotoxine give no result. The property supposed to be possessed by ptomaines of reducing potassium ferricyanide is, therefore, of no use as a means for their separation or detection.—Arch. Pharm. (3), 20, 104–106, quoted in the Journal of Chemical Society of London, Sept. 1882.

Note.—These results are in accordance with those obtained in the Medical Jurisprudence Laboratory, Edinburgh University, shortly after MM. Boutmy and Brouardel had pointed out this supposed property of the ptomaines, and had suggested the reduction of potassium ferricyanide as a test to distinguish these bodies from the toxic vegetable alkaloids (morphia and veratria excepted).