

effect toward the gonad-stimulating action of human pregnancy urine, whole sheep pituitary gland and whole human pituitary gland extracts, when tested in the immature female rat.

Thus an apparent refractory condition of the ovaries of immature monkeys to the gonadotropic hormone of pregnant mare's serum has been produced by chronic treatment with the purified hormone. We believe this condition is related to the presence in the serum of the monkeys of a substance which prevents the action of the gonad-stimulating hormone.

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THE CONTROL OF BRONCHIAL ASTHMA¹

IN fifty cases of bronchial asthma the attacks of paroxysmal dyspnea have been prevented by a régime of treatment based upon elimination, by postural drainage, of the accompanying bronchial and pulmonary exudate.

It is our conception that the fundamental pathological change in bronchial asthma is chronic, non-tuberculous pulmonary infection with characteristic² hypertrophic and inflammatory change in the lymphoid tissue, thickening and hyalinization of the bronchial and bronchiolar basement membrane, saccululation and ulceration of the bronchial mucosa with marked cellular infiltration. The products of this infectious process are the causative factors in the provocation of the asthmatic attack. When these products are not permitted to accumulate in the bronchi and lungs the asthmatic attack never occurs.

The first therapeutic step is reduction of the viscosity of the bronchial and pulmonary exudate in order to facilitate its evacuation. For this purpose elixir of terpene hydrate, guaiacol, sodium iodide, potassium iodide, ammonium chloride and compound tincture of benzoin by steam inhalation have been used singly or in combination.

After the viscosity of the exudate is reduced the patient is instructed to kneel on a chair or stool and place both hands on the floor. The more nearly the thorax approximates an inverted vertical position the more nearly ideal are the results. Compromise positions can be devised for the enfeebled patient. While in this position the patient coughs as nearly continuously as possible and peroral drainage of the exudate is thus accomplished through the combined agencies of the tussive squeeze, ciliary drainage and the beehive blast.³ The exudate is then expectorated. The in-

verted position is maintained for a minimum of three minutes regardless of productivity. This procedure is carried out at least twice daily, preferably on arising and retiring. Coughing during the interval between drainage procedures is the signal that insufficient evacuation of the bronchial passages has been accomplished, and the frequency of the drainage procedure is then increased.

The clinical and autopsy evidence available indicates that sinusitis, tonsillitis and possibly dental abscess are highly important factors in the production and perpetuation of the inflammatory bronchial and peribronchial process resulting in paroxysmal dyspnea. It seems probable that although such focal infections are extremely common they are productive of bronchial asthma only when constitutional thymico-lymphatic stigmata are present.

Although it is possible by the above procedure to prevent asthmatic attacks where active infectious foci are present, total and permanent quiescence of the bronchial and peribronchial inflammation will occur only after ablation of these foci. Under this treatment régime the laboratory and physical signs of bronchial asthma disappear. Some of our patients have been asymptomatic for four years without treatment.

Our series consists of a group of severe and recalcitrant cases ranging in age from six to seventy-five years. Strict adherence to the régime has not yet failed to keep our patients free from asthmatic attacks.

Further studies are in progress regarding other factors which appear important in the provocation of the asthmatic attack and in the perpetuation of the disease process.

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BOOKS RECEIVED

- BRUNT, DAVID. *Physical and Dynamical Meteorology*. Pp. xxii + 411. 112 figures. Macmillan. \$7.00.
FASTEN, NATHAN. *Principles of Genetics and Eugenics*. Pp. viii + 407. 120 figures. Ginn. \$2.80.
HASSEL, O. *Crystal Chemistry*. Translated from the German by R. C. Evans. Pp. ix + 94. 8 figures. William Heinemann, London. 6s.
O'CONNOR, JOHNSON. *Psychometrics*. Pp. xxxiv + 292. 42 figures. Harvard University Press. \$3.50.
Some Problems of Modern Meteorology. Pp. v + 170. Illustrated. Royal Meteorological Society, London. 3/6.
South African Journal of Science: Being the Report of the South African Association for the Advancement of Science, 1934. Pp. xxxvii + 617. Illustrated. The Association, Johannesburg. 30s.
STRONG, WILLIAM D. *Archeological Investigations in the Bay Islands, Spanish Honduras*. Pp. vi + 176. 33 plates. Smithsonian Institution.

¹ Preliminary report.

² Ian G. Macdonald, *Annals of Internal Medicine*, vi: 253, 1932.

³ C. Jackson and C. L. Jackson, *American Journal of Medical Science*, clxxxvi, 849, 1933.