abdomen was slightly distended, nothing abnormal was felt, and there was no tenderness on pressure. There was a "squeaking" bruit just to the left of the sternum, and pulsation to the right of the sternum; the bruit was in all probability cardio-pulmonary.

On May 21st his temperature had risen overnight to 102.4°. His pallor had increased, and he looked ill, and was constipated. His spleen was palpable but not tender, and the liver was not enlarged. Next day the left side of his chest was again aspirated, and 10 c.cm. of opaque, dark, amber-coloured fluid was withdrawn. A sediment appeared on allowing the fluid to stand, and on microscopic examination pus cells and a few cholesterol crystals were seen.

On May 24th his chest was aspirated and 18 oz. of fluid drawn off. The fluid was thicker in consistence than on former occasions; it was greenish-brown in colour and odourless. There was increased sediment, and microscopic examination showed a few cholesterol crystals and many pus cells. A culture of the pleural effusion showed: In aerobic culture, *Staphylococcus aureus*; anaerobic culture, sterile.

On May 30th, as the temperature had been fluctuating between 99.2° (morning) and 102.4° (evening) since May 17th, an operation was decided upon, and about one inch of the seventh rib was resected near the inferior border of the left scapula and 2 pints of pus evacuated. A drainage tube was inserted. Bacteriological examination of the pus revealed in culture a pure growth of *Staphylococcus aureus*.

After this he improved rapidly until June 13th, when he had a sudden rise of temperature to 102.4° and complained of a sore throat. There was a small patch of exudate on the left tonsil, and a few submaxillary glands were palpable. This quickly improved, and his temperature fell to normal on June 16th. On June 25th the left lung was apparently expanding well and the heart was in its normal position. There was still some discharge from the sinus. On July 8th his temperature was normal, his general condition had improved, and he was putting on weight.

He had now lost his cough, and has had no expectoration since his admission to the hospital.

Since compiling these notes he has been discharged from hospital and his condition on leaving was as follows: The breath sounds at the left base behind were clearly audible, but still diminished in front. The "squeaking" bruit had disappeared. The empyema wound was still discharging.

The first case was shown by Dr. Batty Shaw at the meeting of the Association of Physicians on July 12th. I am indebted to Dr. Perkins and Dr. Cecil Wall respectively for permission to publish these cases.

A PERICARDIAL EFFUSION OF "GOLD-PAINT" APPEARANCE DUE TO THE PRESENCE OF CHOLESTERIN.

BY

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THE significance of cholesterol in the body fluids is little understood. In a recent monograph on this subject Adrien Grigaut describes the presence of cholesterol in pleural effusions and hydroceles, but I can find no record of the occurrence of cholesterol in a pericardial effusion.

A. G., aged 32 years, a chauffeur, was admitted to University College Hospital under Dr. H. Batty Shaw on October 15th, 1918. He gave a history of the following symptoms, of five years' duration: Roughness and dryness of the skin; loss of hair; thickness of speech; and, during the last few months, swelling of the feet, legs, and abdomen, and shortness of breath.

His features were heavy, skin harsh and dry, hair coarse and scanty. He was orthopnoeic, cyanosed, and slightly jaundiced. There was a well marked pulsus paradoxus; trace of albumin in the urine; systolic blood pressure, 100 mm.

Examination of the chest showed a great increase in the area of precordial dullness; x rays confirmed, and in the photograph a definite boss could be seen on the right lower border of the shadow. The heart sounds were faintly audible to the right of the sternum.

The condition of the skin and hair was attributed to hypothyroidism; the causation of the pericardial effusion remained obscure. Under treatment with thyroid extract and diuretics his condition improved, although x-ray examination showed no alteration in the pericardial effusion, and on his discharge from hospital in February he was able to resume work and continued at it for six weeks.

He was readmitted to hospital on April 8th, 1919, with severe dyspnoea, weak rapid pulse, cyanosis, jaundice,

marked oedema, and ascites. His condition improved but little, and an attack of bronchitis caused a further embarrassment of the overtaxed and failing heart; it was decided to open the pericardium.

Mr. Gwynne Williams carried out the operation under regional anaesthesia on May 13th. Over three pints were withdrawn of an opaque dark brown fluid of a scintillating gold paint appearance. Laboratory examination showed the presence of large quantities of cholesterol crystals; no bacteria were found.

The cardiac condition rapidly improved, and the patient was discharged early in June, free from symptoms. The last x-ray photograph shows a slight diminution in the area of opacity, and a dense area has developed over the right base.

A PRELIMINARY NOTE ON THE TREATMENT OF INOPERABLE CARCINOMA WITH SELENIUM.

BY

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FOLLOWING the work of Wassermann and Keyser¹ on the treatment of mouse cancer with selenium and eosin, a number of observations were recorded in France and elsewhere on the Continent on the effect of injections of colloidal selenium on human patients with inoperable carcinoma. The pharmacology and low toxicity of this agent were investigated by Duhamel² in 1912. Unfortunately the earliest publication in English on the subject³ attributed a total therapeutic inefficacy to the preparation; and it may be that to this fact must be attributed the lack of notice which in England alone has been accorded to this work.

Previous Reports.

A brief summary of the more important series of observations hitherto published may be useful.

I. Cade and Girard, 8 cases; 5 c.cm. of 0.02 per cent. selenium up to twenty intramuscular injections. No untoward effects. Definite benefit in 5 cases.

II. Bougeant and Galliot, 12 cases; 5 c.cm. of 0.02 per cent. selenium in serum up to (in one case) fifty intravenous injections. Benefit in all cases.

III. A. Blumenthal, 6 cases; 5 c.cm. of 0.02 per cent. selenium up to ten intravenous injections. One case died from sloughing carcinoma of uterus; one not reported; two completely relieved of symptoms; two benefited.

IV. Trinklér, 4 cases; 5 c.cm. of 0.02 per cent. selenium up to eight subcutaneous injections. Some pain. All improved.

V. Touche, 27 cases; 5 c.cm. of 0.02 per cent. selenium; three weekly intramuscular injections, repeated if required. In one case possibly accelerated death (from hemiplegia); seven cases gave negative results; three slightly improved; twelve markedly improved; one showed no macroscopic trace after death. In three the disease appeared to be arrested.

VI. Hope,⁴ 2 cases; 3 c.cm. of 0.02 per cent. selenium thrice weekly up to five doses close to growth. Both improved.

VII. Carles and Vieron, 10 cases; 2 to 5 c.cm. of 0.02 per cent. selenium up to thirty intramuscular injections. Six cases improved.

Personal Observations.

Recently, when I wished to try the effect of copper on a patient with inoperable carcinoma of the stomach, Mr. T. P. Legg, C.M.G., M.S., under whose care the patient was, was good enough to suggest treatment with selenium. Since then, by the kindness of several surgeons, I have been able, at King's College Hospital and at the Throat Department of Bristol Royal Infirmary, to observe the effect on 24 cases. It is as yet too early to pronounce finally on the value of this agent. But pending the completion of treatment in certain of these cases it may be of interest to record the results, in a general way, of my observations as far as they go.

Selenium as available for injection is a "protected" colloidal suspension of erythro-selenium beta, prepared chemically or electrically, and is a dichroic coral-red fluid. It appears not to be very stable; in old preparations the metal is found to be precipitated. It is isotonic, if this has not already been done, before injection, by the addition of sodium chloride solution. I have been careful to record the strength of "solution" used, as there are at least three strengths on the market. I inject a dose representing 0.0005 to 0.005 gram of the metal, preferably intravenously. Intramuscularly it is painless, and this may

prove the method of choice in ambulatory cases, or for those who can only attend at intervals, as it is probably more uniformly absorbed. Injection into the subcutaneous tissues and in the intermuscular septa is slightly painful. The biggest dose I have given is 0.005 gram every day. Several cases have already received 0.1 gram of the metal. In therapeutic doses it appears to be absolutely non-toxic, and is said to non-cumulative.

A transient general reaction—slight malaise and a rise of 1° to 2° F. in temperature—occurs occasionally with the earlier injections. It is more marked in subjects with extensive growths. Later, in those cases in which the tumour can be observed, after four or five injections a focal reaction is to be noted. The tumour becomes softer, appears better supplied with blood and slightly oedematous. I have not observed any definite necrosis or sloughing. The beneficial results observed in greater or less degree in nineteen cases have included:

1. Diminution or disappearance of pain. This is the earliest and most striking result.
2. Diminution in tenderness.
3. Healing of ulcerated surfaces; decrease of discharge.
4. Diminution in size of tumour and secondary deposits.
5. Increased mobility.
6. Improvement in anaemia and cachexia. This is the second most striking feature.
7. Improved sleep.
8. Increase in weight (in two cases).
9. Improved memory and general health (one case).

The improvement has been most marked in carcinoma of the alimentary tract.

In carcinoma of the larynx (8 cases) it appears advisable to proceed cautiously so that the treatment may be modified or suspended in the event of a considerable focal reaction.

It is my intention to afford fuller details of the more interesting cases in a later and amplified communication. I have seen nothing so far to suggest that selenium will cure carcinoma. It appears, however, to be a simple, safe, and not too expensive remedy, and the degree of relief already witnessed is sufficiently considerable to justify the assertion that in the treatment of inoperable carcinoma colloidal selenium deserves more attention than it has received in this country.

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SURGICAL ANAESTHESIA AMONGST BRITISH TROOPS IN THE TROPICS (INDIA).

BY

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THE art of inducing and maintaining anaesthesia amongst Europeans in the tropics has definite characteristics distinguishing and complicating the action of general anaesthetics in contradistinction to their administration in England.

During the last three and a half years I have been in India, and most of that time in Bombay, where in the various war hospitals I have had ample opportunity (in the capacity of specialist in anaesthesia for two years) of noting the mode of action mainly of ether and chloroform.

Of recent years it has been more fully realized that a skilled anaesthetist is as necessary as a skilled surgeon; and this obtains more especially in the tropics, where climatic and temperamental vicissitudes prevail. The Bombay war hospitals are devoted almost entirely to troops invalided from field service, and in the vast majority of cases from Mesopotamia. As in France, so in greater degree in Mesopotamia, the strain of active service has the effect in many instances of inducing a highly nervous condition, especially in the highly strung and primarily neurotic subject, but evident also in the phlegmatic

temperament. In my opinion, in the tropics the subject calling for special care in anaesthesia is the thin and anaemic youth of from 18 to 25 years, perhaps recently out from home and unacclimatized, and particularly the young officer who has had much responsibility thrown on his shoulders, where an error of judgement in the front line might court disaster. Of the two, it is rather the full-blooded beer drinker that I would prefer to have to anaesthetize in the tropics; he will doubtless cause trouble during induction, from struggling, etc., but he will be unlikely to display evidence of collapse and failure of pulse and respiration, or both, which is always in view in the former type.

Irregular and often unsuitable food while on active service also leaves its mark. In a tropical country the food question is often very difficult, especially in the front lines, for bully beef and biscuits predominate, vegetables are often a rare luxury, and a temperature of 120° F. does not add to freshness of the food or to the comfort of the surroundings.

Excessive smoking also plays its untoward part in predisposing to tachycardia and cachexia. Moreover, the climate and surroundings do not permit of entertainments and healthy sports to the same extent as in a non-tropical zone to divert the soldier's thoughts and keep him physically fit.

CHOICE OF ANAESTHETIC.

Ether.—I have been frequently told by medical men in India that ether, at any rate by the open method, cannot be employed in India. This theory I have found to be entirely erroneous. In Bombay, though a moist climate, ether can be administered, either pure by the open method, or as a mixture of ether and chloroform; if pure ether is used I find very little more ether is used than at home. "Up country," with a dry climate and a temperature well over 100° F., open ether can be given satisfactorily, but it is necessarily somewhat more extravagant than in England owing to the atmosphere. In Bombay, for routine administration I find ether 3 parts and chloroform 1 part a very convenient mixture, and patients remain comfortably "under" with the same ease as with the commonly used C.E. mixture at home—(chloroform 2 parts, ether 3 parts). A further dilution still with ether is frequently advantageous, and in serious cases pure open ether is indicated. Ether has been procurable during the last two years, especially at the war hospitals, but during the later months of 1915 and early in 1916 it was extremely difficult to obtain it suitable for general anaesthesia (specific gravity 0.720). The whole supply of ether is imported, and it is mainly owing to the transport difficulty, which in India has been acute, that I have not habitually used pure open ether as at home.

Chloroform.—A relatively dangerous drug in the tropics, especially for those debilitated after field service. Its use in the pure state should, I think, be almost entirely confined to operations requiring Junker's inhaler. It predisposes to shock, and the patient is liable to inhale a toxic dose. Chloroform is always easily procurable, and Duncan's White Label is plentiful, and though one has to work with other brands occasionally, I have had no occasion to suspect their quality. It is necessary in such a climate to keep stock bottles in a cool and dark place.

MODE OF ADMINISTRATION.

A preliminary injection of morphine and atropine is convenient in a nervous subject, but generally quite unnecessary even with open ether; the secretion of mucus is usually slight and rarely interferes with the administration; moreover, surrounding the mask with towels or gauze to any extent is superfluous. Should an injection have been decided on, I have found morphine gr. $\frac{1}{4}$ and atropine gr. $\frac{1}{10}$ half an hour before operation satisfactory. The patient should then not be allowed to walk to the theatre, but should be carried on a stretcher.

A degree of disordered action of the heart unnoticeable ordinarily becomes very evident before an operation, the beat becoming markedly forceable, even to a thrill, and various bruits may be present, which disappear when the stage of surgical anaesthesia is reached.

Although patients "go under" as easily and as quickly as in England, there is increased danger in the tropics during the induction stage, especially with any struggling,