diseases of the biliary system. I have found that, unless the cirrhosis or hepatitis is severe, it is more usual to find a low normal rather than a reduced mucoprotein level, but have not encountered elevated levels. In primary carcinoma of the liver, there is usually an accompanying cirrhosis, and the raised levels found in this series of malignant disease of the liver shows that the malignant process more than counteracts the damage to the parenchymal liver tissue. In my opinion, the mucoprotein test is one of the best in the differential diagnosis between cirrhosis and malignant disease of the liver.

A high cholesterol serum level favours a diagnosis of primary carcinoma of the liver rather than cirrhosis, but the range of serum-cholesterol levels was found to be very wide (86-580 mg. per 100 ml.) I therefore think that no importance can be attached to the serum-cholesterol level.

The low serum albumin probably reflects parenchymal liver impairment in both groups. Alpha-globulin levels are usually increased by inflammation and/or tissue destruction. Two competitive factors account for the wide range in distribution of the alpha globulins: the tendency for a rise with a drop in albumin and the tendency for a fall in liver-cell damage. It appears that the rise in the alpha-globulin fraction in the carcinoma group reflects evidence of tissue destruction.

The beta-globulin fraction is concerned in the transport of lipids, and is elevated in most hepatobiliary diseases, especially those in which there is a concomitant rise in the serum lipids. The increased cholesterol and lipid levels in the carcinoma patients probably account for the raised beta-globulin fraction found in this group.

SUMMARY

1. 37 cases of proved primary carcinoma of the liver were subjected to a "battery of liver function tests". These results and results of similar tests performed on normal European and normal Bantu subjects and on patients suffering from cirrhosis of the liver are presented.

2. The following are diagnostic features in differentiating malignant liver disease from cirrhosis of the liver:
   (i) A disassociation between the thymol turbidity and flocculation tests.
   (ii) A disassociation between the serum bilirubin and alkaline phosphatase levels, especially a raised phosphatase level in the anicteric patient.
   (iii) A raised serum-mucoprotein level.
   (iv) Elevated alpha- and beta-globulin fractions.

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REFERENCES


TWO CASES OF SECONDARY CARCINOMA OF BONE WITH PERIOSTEAL REACTION

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Brailsford1 divides the radiological appearances of secondary carcinoma of bone into 4 types, characterized by (1) erosion of the surface of the bone, (2) multiple islands of cancellous destruction (3) localized areas of denser bone formation, and (4) generalized increase in density of a bone. He associates the last with periosteal reaction, especially in the form of fine radiating spicules. This appearance is well known as a manifestation of secondary carcinoma of bone, although amongst the most unusual. It is sometimes seen as a sign of a secondary bony lesion from neuroblastoma in children.

The following two cases are of interest because they represent examples of partially osteoplastic secondary growths from gastric primaries—a well-known but sometimes
forgotten source of such lesions. Both had a resemblance to osteogenic sarcoma in that there was considerable overlying soft-tissue swelling and because they were situated in the humerus. The X-ray appearances were also suggestive of primary bone tumours and, although the age of the patients and the situation in the humerus in case 2 were against this diagnosis, considerable difficulty might have arisen if an indefinite histological report had been returned or had the previous histories not been known.

**CASE REPORTS**

**Case 1**

A European male, aged 55, was admitted in May 1955 with a diagnosis of perforated peptic ulcer. Laparotomy showed a perforated gastric carcinoma, which was successfully closed by suture. Seven weeks later the primary was removed at gastrectomy. Histological examination of the primary tumour showed an anaplastic carcinoma (Dr. T. Sacks). The patient presented again in June 1956 complaining of severe pain in the right shoulder for 3 months. There was marked swelling of the whole upper arm, which was tense and tender. A hard fixed epigastric mass and hard mobile right axillary glands were present. The X-ray appearances (Fig. 1) showed irregular cancellous destruction with a few areas of increased density and a fine hair-like periosteal reaction. Biopsy of the node showed (Dr. M. Sacks) the same histological picture as that of the gastric primary, and so did that of the humerus (Fig. 3, Dr. N. Woolf). The growth in the last specimen was somewhat more anaplastic than those in the other two areas examined but clearly of the same origin. Fractionated doses of deep X-ray therapy were followed by complete relief of pain, great reduction in swelling, and restoration of function of the arm. Mid-line dose was 3456 r. (200 kV constant potential; added filter 2 mm. Cu H.V.L. 2-25 mm. Cu F.S.D. 50 cm.). Later an osteolytic area in the dorsal spine developed, and the patient became symptom-free for a while on similar treatment.

**Case 2**

A Coloured male, aged 53, underwent gastrectomy in February 1956 for carcinoma of the pylorus. Many secondary glands were found at laparotomy and the histology was that of an anaplastic carcinoma (Dr. T. Sacks). He presented again in October 1956, with swelling and pain and a feeling of lameness in the left upper arm. Clinically there was localized thickening in the centre of the lateral aspect of the humerus. There was no evidence of local recurrence of the gastric lesion. X-ray (Fig. 2) showed some sclerosis of the centre of the shaft of the humerus, with overlying spicular formation and partial destruction of the cortex. Biopsy showed the same histology as the gastric primary (Fig. 4, Dr. N. Woolf). The patient discharged himself from hospital before treatment could be given.

The response of the first case to X-ray treatment at once suggested a means of treating the second, although the response of gastric carcinoma to irradiation is very variable. Fairchild and Shorter have treated some primary growths with 250 kV X-rays directly at operation and with supplementary fields later, with some good results, and
radon seeds have also been used for treating primary growths in a few cases with some good effect. It would seem to us that the type of lesions described are at any rate worth a trial of palliative therapy.

**SUMMARY**

Two cases of metastatic gastric carcinoma are described, both resembling osteogenic sarcoma. The response of one to X-ray therapy is noted and it is pointed out that this may sometimes be a useful palliative agent for gastric carcinoma.

Thanks are due to the Medical Superintendent Dr. N. H. G. Cloete, Dr. J. Muir Grieve and Prof. J. H. Louw for permission to publish the cases and for their advice; to Prof. J. G. Thomson for permission to publish the photomicrographs and to him and his staff for their advice; and to Prof. J. N. Jacobson for permission to publish the X-rays. The photographs of the X-rays were taken by Mr. B. Todt and the photomicrographs by Mr. G. McManus.

**REFERENCES**


**PUERPERAL SEPSIS 1800—1957**


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There are many people who find the study of history dull. 'It is the wise man who profits by his own mistakes', but it is common sense that he is a wiser man who profits from the mistakes of others. I crave your forbearance, therefore, if occasionally I wander from the strict path of my subject in order to catch a wider view so that we may learn something from the mistakes of the past. The story of puerperal sepsis from 1800 to 1957 is a most exciting one. In terms of the title of my address it must commence with the beginning of the 19th century but I trust you will pardon a very brief prologue so that we may the better see the events of the years in their true focus.

**PROLOGUE**

Denham and Boer

In the year 1784 the Lying-In Hospital at Vienna was founded and in 1789 Boer was appointed as its director. He worked faithfully and well for 33 years, during which time the institution delivered 65,000 mothers, 850 of whom died—a mortality of 1.3%. Before taking over his appointment Boer had come under the influence of Great Britain of Denham, who 20 years previously, in the year 1768, had stated that childbed fever was contagious and could be transmitted by physicians and by nurses from one mother to another. Based on this belief he taught the principles of cleanliness and patience and maintained that these were the weapons with which to fight the contagion. It is interesting to note that in the year 1770 Levret had questioned whether the forceps used by Smellie might not carry the contagion on the leather with which they were coated. During the years of his work at Vienna Boer had maintained the tradition taught him by Denham and had persistently refused to allow teaching from cadaver instruction and employed this method in the hospital. He was followed by Semmelweiss and our story really commences with the years during which Semmelweiss occupied the post of Director of this big institution.

Semmelweiss, CEDERSCHORD AND WENDELL HOLMES

Semmelweiss divided the institution into two divisions. In the first of these he delivered 20,042 women with 1,989 deaths—a mortality of 9.9%. In the second division he delivered 17,791 women with 691 deaths a mortality of 3.3%. The essential point of difference between the two divisions was that the first was used for the instruction of medical students whereas in the second the deliveries were conducted by midwives. It follows, therefore, that in the first division were assembled those who were also receiving instruction from the cadaver. There appears to have been no other major point of difference between the work done in the two divisions nor was there evidence of selection of cases for one or other group. It became an established fact, which of course soon became known to the citizens of Vienna, that women who were prolonged were very liable to perish. Scenes of anguish occurred from time to time when women who believed they were being admitted to the second division found that because of shortage of beds or for some other reason they were to enter into the dreaded first division. They would plead at the door of the wards that they should be sent to the second division. Women distressed with peritonitis, with bright eyes, high temperatures, rapid pulses and a great fear would lie in the wards protesting that they were not ill because they dreaded receiving the medical assistance which seemed to them to be but a herald of approaching death. It was the custom of the priest as he went around the ward to toll the bell to the Last Sacrament. Women who labour were prolonged very liable to exsanguination. Scars of anguish occurred from time to time when women who believed they were being admitted to the first division died as a result of her labour the furte visits of the priest with his tolling bell had such a detrimental effect on the morale of the patients in the ward, and probably of the staff, that Semmelweiss found it necessary to suggest that the bell was not an essential to the Last Sacrament.

While these terrible happenings were a daily occurrence in the lovely city of Vienna, opinion elsewhere in the world was more progressive. In Stockholm Céderchord in 1839 had stated quite definitely that puerperal fever was carried by nurses and doctors from both the sick and the dead. He therefore ordered that every patient in his wards should have her own sponge and towel and he added chlorine to the water for washing to lessen the danger of transmitting the contagion. The result was that he reduced the epidemics of childbed fever to zero, although sporadic cases still occurred. In the United States of America the poet and essayist, Oliver Wendell Holmes, born at Cambridge, Massachusetts, and a graduate of Harvard, was becoming interested in the problem of puerperal fever. He had studied medicine for 2 years at Paris. His attention was drawn to the tragic case of a physician whose hand was pricked at a post-mortem examination and who subsequently died. Between the time of receiving his injury and his death he had examined a labouring mother, who also died of infection. Holmes considered these tragic events, and in 1843 published a paper on *The Contagiousness of Puerperal Fever*. He proclaimed his belief that this was transmitted from the corpse and from the living when there was associated erysipelas, and laid down 3 clear rules of prophylaxis: