pulmonary type, in which the increase was practically confined to the "under-fifteens" (except the increase of tuberculous meningitis, which extended to adult ages).

3. At ages over 25 males have been more affected than females. Below 25 it appears that, with the non-pulmonary type, females have been more affected than males, but with pulmonary tuberculosis at these younger ages there is no conclusive evidence that one sex has been more affected than the other.

4. The increase in non-pulmonary tuberculosis has occurred almost equally in all the principal sites, except in abdominal tuberculosis, in which the increase was significantly lower.

5. New cases of pulmonary tuberculosis increased more in adults than new cases of the non-pulmonary disease. This fact, coupled with the evidence of site distribution for non-pulmonary forms in children, suggests that contact and droplet infection has been an important feature in London.

6. There is evidence both that pasteurization of milk has held back the spread of bovine infections and that the principal infecting source is human.

7. Factors influencing the incidence of tuberculosis include changes in the age and sex distribution of the population as a result of evacuation and of recruitment to the Forces, the strain and overcrowding resulting from bombing, fatigue and lack of rest, restriction of diet, and, on the other hand, increased employment and financial resources for those formerly on the verge of poverty. In mental hospitals the increased incidence is greater than in the population as a whole.

WARTIME DERMATOLOGY WITH A PLEA FOR ECONOMY

BY

R. WORKMAN CARSLAW, M.D.

Surgeon Lieutenant, R.N.V.R.; Assistant Physician for Diseases of the Skin, Victoria Infirmary, Glasgow

The treatment of diseases of the skin in peacetime is considered of little importance and of no urgency, as the sufferers are said never to be cured nor yet to die. In recent years, however, treatment has advanced considerably and so have teaching and hospital facilities. Only when the whole of the available working power of the country is mobilized is the crippling effect of diseases of the skin fully realized, and their treatment assumes added importance in wartime medicine (Vickers, 1940).

In the Services it was soon found that many man-hours could be lost through trivial skin complaints. At sea about 50% of the daily attendances at the sick bay are for skin complaints. This takes up time and space and medical stores, of which only a limited stock can be carried. Scabies has become rife in the large centres of population, and as a result its prevalence has increased in the Navy. Recent experience of dermatology in the Naval Medical Service has brought several facts forcibly to my attention, and these are expressed in the following notes.

Material

The survey covers a period of two and a half years, which began one month before the opening of hostilities. This period falls naturally into three parts—namely, six months at sea, eighteen months ashore, and a second period of six months at sea.

The first part is the experience of six months afloat in cold or extremely cold conditions with a personnel of approximately 500 men. During this time there was little contact with centres of population, and the food was good, with a reasonable amount of fresh fruit and vegetables. The accommodation was crowded and the hours of darkness long, but the general health remained good. The second part is the experience of the skin department of a large naval hospital at home. Here there was accommodation for 28 in-patients, and out-patients were seen by consultation. The cases were drawn from all three Services in the area and the ships based on the port. A small number of foreign invalids were received. The third part is the experience of six months afloat in tropical conditions with a personnel of approximately 1,600 men. Little contact was made with centres of population, and fresh food was inter-

mittently available. The accommodation was satisfactory and the period of daylight 12 hours. The general health was also satisfactory.

Circumstances peculiar to the Service are found to be on both the credit and the debit side. The discipline enables the medical officer to obtain greater control over treatment, but the exigencies of the Service may interfere with it. The population is entirely male afloat, and largely so ashore, while children are not included. The standard of physical fitness is above the average of the general population. The nursing facilities are limited. The number of attendants is small, and their training is short judged by civil nursing standards. Accommodation is limited, and isolation difficult except in the hospitals. At sea, facilities for dispensing are often poor and replacement of medical stores is difficult; rapid changes in climatic conditions are encountered, and the laundry is often overtaxed. Ashore, the personnel are apt to move from one area to another without warning.

Restrictions imposed by War Conditions.—Economy in all things is of paramount importance in wartime. Loss of man-hours is a matter for grave concern, and those affected with skin lesions must continue their normal work wherever possible. If it is necessary to take a patient off work his sick period must be kept to a minimum. Economy in various drugs is an essential part of the national economy, and where an alternative exists the inferior drug may have to be employed in the national interest. Where alternative treatments are possible, that which combines effectiveness with economy should be chosen without regard for the personal experience or preference of the medical officer or patient. The nursing staff is relatively reduced in number and the training period for probationers is shortened. The standard of physical fitness is lower than in peacetime. The necessity for black-out, with impaired ventilation and the wearing of gas masks, must have a deleterious effect on skin conditions.

The Cases

First Part.—During this period few skin cases were encountered. These consisted of a number of cases of impetigo and scabies and several cases of dermatitis of the hands, apparently due to change from civil to Service occupation.

Second Part.—During this period 1,149 cases were seen—652 as in-patients and 497 in consultation. There were a large variety of conditions, but only the more common ones are shown in Table I.

TABLE I

Disease	In-patient	Out-patient	Total
Dermatitis from all causes	31.6%	30.7%	31%
Seborrhoeic dermatitis	8.5%	8%	8%
Occupational dermatitis	4%	7.6%	5.8%
Dermatitis medicamentosa	3.7%	1.5%	3%
Scabies	27%	9%	18%
Impetigo	16%	4%	10%
Mycosis*	8%	9%	8.4%

* Including tinea pedis, tinea cruris, and tinea circinata.

Third Part.—During this period 349 cases were treated. As these cases were seen afloat, they were kept under observation up till the time of writing—i.e., two months after the end of the period. Only those conditions with an incidence of over 5% are shown. They were: mycosis, 56%; scabies, 15%; miliaria rubra, 13.5%; and impetigo, 8%.

Treatment

Four conditions make up 67.4% of the cases in Part 2, and four conditions make up 92.5% in Part 3. Three conditions are common to both—namely, scabies, impetigo, and mycosis—the remaining two being dermatitis from all causes and miliaria rubra. Briefly, the treatment used in those five conditions was as follows:

Scabies.—During Part 2 an emulsion of benzyl benzoate was employed. The formula and procedure for this emulsion were described in a previous paper (Carslaw and Swenarton, 1941). In Part 3 this emulsion was unobtainable, in the early months sulphur ointment (B.P.) being used, and later the benzyl benzoate mixture with soft soap and spirit. A course of treatment in each case consisted of three applications in three days, with a hot bath before treatment. Disinfestation of all clothing

was carried out. The results are shown in Table II. The 4 cases which failed to respond to sulphur treatment responded later to a course of benzyl benzoate. The minimum time of observation after treatment has been 2 months.

TABLE II

Treatment	1 Course	2 Courses	Failures	Total
Benzyl benzoate mixture ..	27	4	—	31
Sulphur ointment ..	18	1	4	23

Impetigo.—The treatment for impetigo in Part 2—i.e., in the home climate—was sulphanilamide ointment followed by a brilliant-green stearate paste. This treatment was described in a previous paper (Carslaw and Swenarton, 1941), and proved successful. In the Tropics the paste was not stiff enough, and the sulphanilamide ointment was contraindicated because of the ointment base. The routine treatment in Part 3 was swabbing with lotio hydrarg. perchlor. 1 in 1,500, followed by the application of lotio calaminae. This treatment was carried out twice a day. Firm dry crusts were thus formed which on separation left a healed surface. By this means 27 cases were treated without a failure, and the patients were able to carry out their full duties. The cases of impetigo occurring in the Tropics were of a mild type.

Dermatitis.—This term is taken to cover allergic dermatitis, seborrhoeic dermatitis, dermatitis venenata, dermatitis medicamentosa, and occupational dermatitis. The treatment varied to a certain extent with the aetiology, but was chiefly influenced by the histology and the need for economy. The dermatitis might be exudative, inflammatory, parakeratotic, or lichenified, and the treatment was normally lotio plumbi (B.P.), ichthyol 10% in water, aqueous gentian violet 1%, lotio calaminae with tar, or tar 5% in zinc ointment. The ointment base was used only if there was considerable scaling.

Miliaria Rubra.—This condition was almost universal in the Tropics, and only the more severe cases could be given treatment. This consisted of lotio calaminae 2 parts, spirit 1 part, to which was added carbolic acid 1% and in some cases menthol 1%.

Mycosis.—Ingram (1942) recently drew attention to the increasing incidence of ringworm infection of groins and toes in the Services. This is borne out by the fact that there were 196 cases of ringworm infection in Part 3—i.e., 56% of all cases. Andrews (1938) states that it is not the fungicide but the method of application that is of importance, and gives a list of fungicides. When it was realized that mycotic infections would be numerous the fungicides carried in the ship were checked and a plan devised. The first cases were treated with tinct. iod. mitis for three days, followed by salicylic acid 5% in spirit for four days, this course being repeated as often as necessary. Salicylic acid 5% in spirit, increasing up to 20% for some cases, was next employed. The limited stock of chrysarobin ointment (U.S.P.) was brought into use, and later on gentian violet 1% in spirit was pressed into service. The

remembered that the number of cases in each group was partly governed by the quantity of the drug carried.

It will be seen that chrysarobin ointment treatment was the most successful, followed by gentian violet 1% in spirit and then tinct. iod. mitis. A 5% solution of chrysarobin in water was found to be at least as efficacious as the ointment, but only 2 drachms of dry chrysarobin was available. The extent of the ringworm infection was remarkable, 75 cases having lesions on the body in addition to those on the feet or groins. In one case large patches of mycosis extended over almost the whole of the bathing-drawers area, and in another practically the entire back was covered by a single patch. The 58 cases of infection of the feet were controlled by the application of gentian violet lotion 1%, and occasionally Whitfield's ointment was applied if the dry scaling became marked. This treatment was found to be successful, and although it is not suggested that the cases were permanently cured, the men were able to continue with their work and were free from symptoms. The fungus was distributed on the body as follows: tinea cruris and circinata, 68 cases; tinea cruris only, 62; tinea pedis only, 40; tinea cruris and pedis, 11; tinea circinata only, 8; tinea cruris, circinata, and pedis, 6; tinea circinata and pedis, 1 case.

Discussion

I feel that the treatment of skin diseases has been too conservative, shrouded in mystery, and bogged in ointment. Textbooks of dermatology are of little use to the Service medical officer in wartime, as it is often totally impossible to carry out the treatment recommended; and, furthermore, a textbook for temperate climates is useless for the Tropics. I think the following are the salient points in Service wartime dermatology: (1) economy is of national importance; (2) the bulk of medical stores must be kept small; (3) simplicity and, where possible, standardization ease the burden of an over-taxed nursing staff; (4) early diagnosis and treatment saves loss of man-hours.

Two treatments described in this paper are contrary to the policy of economy advocated. Chrysarobin ointment was used, not the aqueous solution; and a mercury lotion was employed in the treatment of impetigo. The reason was that the ointment and the mercury were carried in the ship, though it would have been an economy if they had been replaced by the powder and a larger stock of aniline dyes.

Economy has been stressed recently in many articles in the medical press. Brain (1941) states: "No mention has been made of mercury because, although of value, it is more essential to the national economy in war industries." This statement was made in discussing the treatment of impetigo.

Ointments could, it is felt, be largely discarded, particularly in summer and in hot climates; mercury be replaced by aniline dyes; and starch poultices be put out of production. Dressings are often changed four-hourly, but this may retard healing, and a twice-daily dressing is normally sufficient and in many cases not even necessary. Dressings should always be as light as possible, no wool or lint being used. Brain (1941) states that an ointment in the treatment of impetigo is inadvisable, as a film of grease retains exudates and sweat, which encourage the growth of organisms and irritate the follicles. Both Conybeare (1940) and Brain stress that a dry intact stratum corneum is Nature's defence against skin infection. The saving in ointment means a conservation of the all-important fats. Those drugs which can be carried in a powder or crystalline form save space, as they are commonly used in weak aqueous solutions. In this connexion chrysarobin powder and gentian-violet crystals should always be carried in this form and never as an ointment or in solution. Crude coal-tar should be substituted for a prepared tar.

The best results are attained by the use of a comparatively small number of remedies (Conybeare, 1940), and simplicity saves the time of nursing and dispensing staffs. Early diagnosis, and therefore the early institution of treatment, means a smaller area to treat and a saving of stores and time lost.

In many ways life has been made more simple by the introduction of rationing in domestic life, and a plea is made that the treatment of skin conditions could and should be simplified to conform with the national war effort.

TABLE III

Treatment	Duration of Treatment in Days			Failed	Total Cases
	1-7	8-14	15+		
Chrysarobin oint.	78	11	—	11	36
Tinct. iod. mitis ..	37	31	20	12	51
Gentian violet 1% ..	67	20	—	13	15
Tinct. iod. mitis and ac. salicylic. 5% ..	13	22	52	13	23
Ac. salicylic. 5-20% ..	26	26	15	33	39
Thymol ..	10.5	10.5	21	58	19
Ac. carbol. 1% and sulphur oint. ..	—	30	—	70	10
Mercuric iodide ..	100	—	—	0	3

last was found to be impracticable on account of the staining of clothing, and so thymol 5% in spirit was tried. As thymol proved unsatisfactory a return was made to tinct. iod. mitis twice a day without salicylic acid. Carbolic acid 1% in sulphur ointment (B.P.) was given a short trial, and mercuric iodide in spirit was used for 3 cases but was found to cause second-degree burning and destruction of tissue. Table III shows the results achieved with the various treatments. It must be

Summary

A survey is made of 1,498 skin cases seen in the Royal Navy in wartime.

It is shown that five conditions cause the majority of skin casualties in the Navy. The treatment used for those five conditions in two and a half years of wartime dermatology is very briefly described. Emphasis is placed on the treatment of mycosis—for which chrysarobin is recommended—as those cases were unusually severe and numerous.

The difference between the civil practice of dermatology and dermatology in the Service is mentioned and the added difficulties of war conditions are noted.

A plea is made for greater economy and simplicity in the treatment of skin conditions.

I am indebted to Surg. Cmdr. Patrick for permission to publish this paper.

REFERENCES

- Andrews, G. C. (1938). *Diseases of the Skin*, 2nd ed., Saunders, Philadelphia.
Brain, R. T. (1941). *British Medical Journal*, 2, 492.
Carslaw, R. W., and Swenarton, J. A. (1941). *Ibid.*, 2, 225.
Conybeare, J. J. (1940). *Textbook of Medicine*, Livingstone, Edinburgh.
Ingram, J. (1942). *British Medical Journal*, 1, 54.
Vickers, H. R. (1940). *Med. Pr.*, 204, 316.

LIGATURE OF INNOMINATE ARTERY FOR RIGHT SUBCLAVIAN ANEURYSM: END-RESULT

BY

Sir W. I. de C. WHEELER, M.Ch.(Hon.),
F.A.C.S.(Hon.), F.R.C.S.I.

Temporary Surgeon Rear-Admiral

In the case of which the end-result is here recorded, the innominate artery was ligatured in Dublin in May, 1932, for right subclavian aneurysm. The patient died 8 years and 4 months later, in Sept., 1940, presumably from rupture of an aneurysmal sac. No details could be obtained. Death was sudden and unexpected.

Three previous cases have been reported from Dublin; these occurred in the days before aseptic surgery. Copping of the Mater Misericordiae Hospital was the first surgeon in Europe to tie successfully the innominate artery for subclavian aneurysm (1893). Sixteen months after operation "the aneurysm was represented only by a small movable and hard filbert-sized tumour." In this case the carotid artery was divided between two ligatures. Thomson of the Richmond Hospital lost a case from secondary haemorrhage on the forty-second day, and O'Grady of Mercer's Hospital reported a case in which the patient died of "apoplexy" on the day following operation. In this instance the carotid artery also was tied. Ligature of the innominate artery remains a rare procedure. Up to and including the year 1922 there were 57 cases on record with 19 recoveries (Ballance, 1921). Rundle (1937) adds 5 subsequent cases. I have been unable to obtain the figures for recent years, but, judging by the paucity of cases in the past, it may be assumed that the total number to date does not exceed the round figure of 70. It is not the purpose of this communication to discuss the merits or drawbacks of the various surgical procedures. Whatever operation is employed for aneurysm of the aorta or any of its main branches the life of the patient may be prolonged, but he remains in a condition of perpetual jeopardy, and seldom survives for many years. The longest survival period after ligature of the innominate artery which I could find in the records is 10 years (Smyth of New Orleans, quoted by Erichsen, 1895). After ligature of the subclavian and common carotid for innominate aneurysm a patient was alive 18 years after operation (Baldwin's case, mentioned by Rundle). I have had one case of abdominal aneurysm in which the patient lived for the same period after the introduction of Colt's wires. These cases are, however, the exception; the majority of "cures" and "successes" are recorded when only a few weeks or months have elapsed after operation. Guidance as to prognosis is difficult to obtain from published cases: exaggerated claims are made long before real

results could be estimated. Post-mortem specimens obtained shortly after operation are not convincing evidence of "cure" unless death can be attributed to a condition neither directly nor indirectly concerned with the aneurysm. Even when this can be proved, it must be remembered that most of the patients who survived for many years eventually died of a secondary dilatation of the artery or a recurrence of the original aneurysm. The fact is, operation is palliative only, although a few surprisingly good results are on record.

In the original report of the case under review it was pointed out that the ideal operation for subclavian aneurysm is proximal and distal ligature with excision of the sac. As there was an apparent "cure" after ligature of the innominate artery, a contemplated second-stage operation (i.e., an attempt to ligature the distal arteries and excise the sac) was abandoned.

History of the Case

The patient, approximately 35 years of age, was wounded in France in 1915. On examination in 1932 a portion of a bullet could be seen by x rays deep to the insertion of the right sternomastoid muscle. There was a pulsating swelling the size of a duck's egg above the right clavicle. The right recurrent laryngeal nerve was paralysed, but, apart from this, there was a striking absence of the more usual clinical signs. The radial pulse was not affected, the blood pressure was the same on both sides, there was no bruit, and expansile pulsation could not be detected. The Wassermann reaction was negative.

It was hoped that ligature of the subclavian artery behind the scalenus anticus muscle would be possible and that, later, distal ligature and excision of the sac could be accomplished. The clavicle was divided in two places so that the central portion with its pectoral attachments could be turned downwards on

FIG. 1.—Subclavian aneurysm. The position of the tumour and the line of incision are shown. X marks the position of the bullet.

FIG. 2.—Subclavian aneurysm treated by ligature of the innominate artery. A, Transversalis colli artery. B, External jugular vein. C, Suprascapular artery. D, Divided sternum and sterno-clavicular joint retracted upwards. E, Hook retractor just above attachment of first rib to sternum. F, Innominate artery. Inset shows ligatures applied proximal and distal to thyroidea ima branch.

the chest (Moynihan). The aneurysm in this manner was laid bare and the bullet removed. The external and internal jugular veins were found obstructed and distended. The suprascapular and transversalis colli arteries were seen lying transversely across the tumour. The scalenus anticus muscle, as such, had disappeared and the phrenic nerve was not located. The sac clearly extended to the bifurcation of the innominate artery, and in consequence proximal ligature of the subclavian artery was impossible.