equipped with a small electrostatic precipitator for removing particulate matter. The intake of this unit was in the main ward, and it can be seen from Table III that the smoke concentration there followed the outdoor level very closely, whilst in the air-conditioned room the concentration was 28% of that in the main ward.

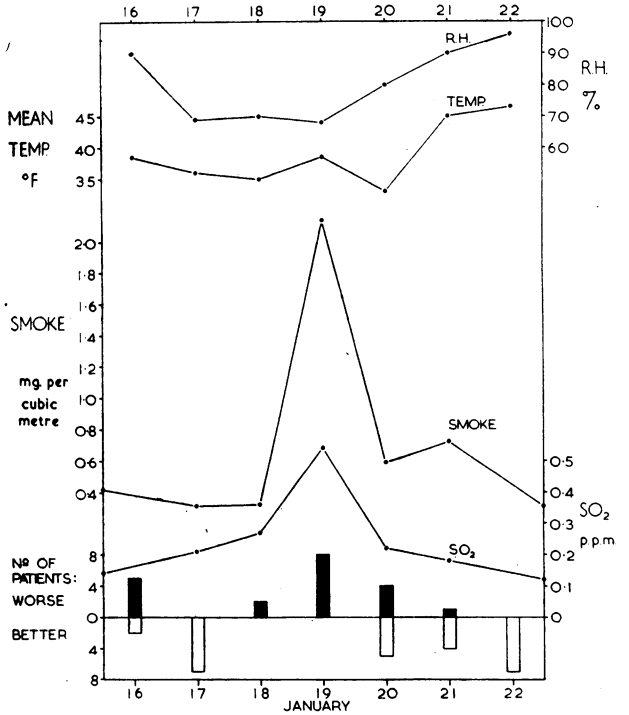

FIG. 2.—Day-to-day changes in the condition of 29 chronic bronchitics, and daily levels of pollution, temperature, and humidity.

TABLE III.—*Concentration of Smoke in Air-conditioned Room, January 19/20*

Period	Smoke Concentration, mg. per Cubic Metre		
	Outdoor	Main Ward	Air-conditioned Room
4–10 p.m.	4·70	4·69	1·31
10 p.m.–10.30 a.m. ..	1·27	1·12	0·33

This reduction, which was sufficient to make the air noticeably clearer, might have been greater had it been possible to keep the door closed all the time. In addition, a simple device which recirculated the air through soda lime was started, to reduce the concentration of acid pollutants. The patient in this room showed no distress whatever, but we do not claim that this is significant.

Discussion

The smoke "fog" reported here differed from ordinary London fog in that it was dry, and appeared to be free from sulphuric acid. It did, nevertheless, have a marked effect on some chronic bronchitics who were exposed to it. Its chief feature was the rapid variation in smoke concentration, and the very high peaks reached. It is worth considering this in relation to the London fog of December, 1952.

Observations of pollution at that time have been reported by Wilkins (1954), and an official report on the episode has been published (Ministry of Health, 1954). The maximum concentration of sulphur dioxide recorded was 1.34 p.p.m. (roof of County Hall, Westminster), and the corresponding smoke level was 4.46 mg. per cubic metre. These figures represented mean values over a 48-hour period. Little is known of the variation within that period, but hourly observations of smoke at Teddington—11 miles (17.7 km.) from Central London—show that the concentration remained constant for 24 hours during the middle of the fog period (E. T. Wilkins, personal communication to us). However, there was a marked peak at Teddington just before that, and it is possible that, in Central London, concentrations of smoke and sulphur dioxide were considerably above the 48-hour averages at some time during the episode.

Summary and Conclusions

Visibility may be greatly reduced in London by smoke, in the absence of fog.

On January 19, 1955, very wide variations in the concentration of smoke were observed, and a tenfold increase occurred over a period of two hours. There was also an increase in sulphur dioxide, but no sulphuric acid was detected by the methods used, although traces might have been present in the form of minute droplets.

A temporary deterioration in the clinical condition of some patients with chronic bronchitis and emphysema coincided with this episode.

The results emphasize that measurements of pollution over 24- or 48-hour periods do not necessarily indicate the hazard to which the population may be exposed.

We are indebted to Professor Ronald V. Christie for his encouragement and valuable criticism. Technical assistance during the course of this work has been given by Mrs. M. M. Austin. The high-volume sampler has been made available through the kindness of the U.S. Public Health Service.

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CHRONIC PERIONYCHIA

AETIOLOGY AND TREATMENT

BY

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Chronic perionychia is a painful and disfiguring condition, and is frequently difficult to cure. One's impression in a dermatological out-patient department is that it is becoming more common, but this may only be because sufferers are now more prepared to seek a specialist's opinion. The condition is only briefly dealt with in many dermatological textbooks, though some contain more adequate accounts—for example, Ormsby and Montgomery (1948) and Ingram and Brain (1955). Surgical textbooks rarely deal with the fundamental aetiology, and usually advocate mutilating surgical procedures which are unnecessary and unsatisfactory. Thus Handfield-Jones and Porritt (1948) state: "Treatment in the early stages consists in an incision in the skin at the site of the infection to expose the nail-root on that side and a small segment is removed. When the infection has spread around the nail, two parallel cuts are made so that a flap of skin can be dissected off the nail-root."

In my experience many of these patients are not properly treated, and this has led me to describe some general lines of treatment—which, though not original, have on the whole been fairly successful—in the hope that they may be helpful to practitioners generally.

Chronic perionychia may be secondary to some systemic condition, such as syringomyelia or Raynaud's disease, or associated with a chronic eczema of the

fingers, when the treatment is essentially that of the underlying condition, and as such is not considered here. The following discussion is limited to those patients who develop perionychia as a primary and isolated phenomenon affecting one or more fingers. The figures quoted are based on 100 patients (6 males and 94 females), half of whom were private patients and half seen in the out-patient department.

The Table shows that chronic perionychia is most common in middle life. Occupation has an

Age Incidence

Age in years ..	0–10	11–20	21–30	31–40	41–50	51–60	61–70	71–80
No. of cases ..	2	1	10	20	34	23	9	1

important influence on the condition. The following is a list of those most often involved: Housewives and domestic servants (66), hospital nurses (5), barmaids (3), café workers (3), varied shop assistants (6), typists (2), laundress (1), fruit packer (1), masseuse (1), and other single examples. The six men were a dentist, an engineer, a cement worker, a cabinet maker, a butcher, and a commercial traveller. The figures may be subject to some inaccuracy, as many women, and probably some men, do housework in addition to their ordinary work.

Clinical Picture; Diagnosis

The most characteristic feature is redness and swelling or "bolstering" of the nail-fold at the base and often round the sides of the nail, which in severe cases may almost give the distal phalanx a drumstick appearance. The nail-fold is separated from the nail instead of being firmly adherent as normally, and a little pouch is thus formed into which a chisel-shaped orange stick can be introduced a considerable distance. The swollen nail-fold is usually tender, and even when it is not actually painful it is liable to recurrent exacerbation of extreme tenderness. At times an acute flare-up may be associated with lymphangitis and adenitis. The pocket under the nail-fold sometimes exudes pus on pressure, especially during exacerbations, but in some cases no pus is ever seen. The nails are often distorted, and may be ridged transversely, irregular, and somewhat discoloured, though they do not show the yellowish-white opacity so typical of fungus infection. Only very rarely does chronic perionychia give rise to a deep infection of the distal phalanx, but when this occurs surgical treatment is obviously indicated.

The diagnosis is usually obvious, but a common mistake is to diagnose the condition as a fungus infection because of the dystrophic appearance of the nail. This is a serious mistake, because ringworm of the nail can be cured only—and then not for certain—by removing the nail, whilst the nail changes in perionychia are only secondary and will clear up once the primary lesion is cured. Ringworm infection rarely affects the nail-fold and does not produce bolstering or a pocket under the nail-fold; it causes a more definite opacity of the nail, often quite well defined, and the nail may be more friable than in perionychia. The finding of mycelium in a scraping from the nail is the ultimate test. Whether *Candida* (monilia) causes perionychia or is only a secondary invader is still uncertain; even if it does cause it, the lesion should be treated like an ordinary perionychia and not like a fungus infection of the nail. Occasionally perionychia may be due to specific infections such as syphilis or be secondary to syringomyelia; but here the whole distal phalanx is involved and the lesion not limited to the nail-fold, and the differential diagnosis should not be difficult. I have at times seen an exostosis mistaken for a perionychia and also a rare condition called acrodermatitis continua, in which redness, scaling, and tiny intra-epidermal pustules may start round the nail, ultimately leading to some loss of tissue.

Aetiology

Although perionychia is due to an infection, the soil is much more important than the seed, for bacteriological investigation reveals no constant flora, but a variety of organisms, including staphylococci, streptococci, coliform bacilli, and other micro-organisms which may be non-pathogenic, including *Candida albicans*, and it is not possible to distinguish one infection from another on clinical grounds. It may be significant that one patient who gave a profuse growth of candida was a diabetic. Some patients seem prone to perionychia irrespective of their work, and some of mine have a history of persistent or recurrent attacks for 15 years or more. One woman had had attacks at the ages of 30, 52, 58, and 60. One gets the impression that many of these patients have some vascular abnormality in the form of either chilblains or "dead fingers." In my series such changes were recorded as present in 45 patients and as absent in 13, and were not recorded in 42; this is suggestive but not necessarily significant, though it may be a pointer towards treatment in difficult cases.

As mentioned above, occupation plays a most important aetiological part, at least 80% of the patients being employed in work involving constant exposure to water and often also to detergents. Other facts which emerged were the frequent association with sepsis elsewhere in the form of boils or an aural abscess, or merely a history of "always going septic"; though whether these lesions were primary or secondary to the perionychia was not always easy to determine. Occasionally the condition was familial. The immediate onset was sometimes the direct result of trauma, as from a rose thorn or a manicure, whilst at others it seemed to follow some depression of the patient's general condition such as pregnancy or anaemia.

Treatment

I would condemn surgical incisions and removal of nails as being unnecessary and often, by themselves, unsuccessful; also the use of antibiotics is rarely helpful—except occasionally in acute flares, especially if associated with lymphangitis—is expensive, and is attended by all the disadvantages of unnecessary antibiotic therapy. The aim of treatment is (1) to remove predisposing factors by keeping the fingers dry; (2) to sterilize the pocket under the nail-fold; (3) to restore the anatomical contour so that the nail-fold can once again become adherent to the nail; and (4) if possible to improve the circulation in the fingers.

To achieve the first object may be easy if the patient can obtain domestic help or move into a residential hotel, but usually such solutions are not feasible. Exposure can be reduced by changing to an electric washing-machine and by using a mop, preferably of the sponge type mounted on a steel handle, for washing up. Ordinary rubber gloves or, for single nails, finger-stalls, may help, but frequently women cannot endure the rubber, or they find that sweating causes maceration under the gloves. Powdering may help this, but cotton gloves inside the rubber ones are better, though many women find two pairs of gloves a nuisance and prefer a lined rubber glove such as the "marigold" or "glovelies" type. Others prefer "plastic mits" which allow free movement of the fingers. Even with these precautions, great care must be taken always to dry the hands carefully immediately after exposure to water, even if only for personal washing. Attention should be paid to the patient's general condition and any anaemia and any source of sepsis such as pyorrhoea dealt with. An attempt should be made to improve the local circulation, and for this purpose I have found tolazoline hydrochloride, 25 mg. three times a day, most useful, though at times I have obtained benefit from thyroid. Unnecessary exposure to cold should obviously be avoided, and occasionally a change of job is indicated.

Local Treatment

The first objective is to sterilize the pouch under the nail-fold; this is done by pushing in a wisp of cotton-wool

soaked in pure phenol by means of a chisel-shaped orange stick and leaving it there for a minute after wiping off the excess. This can be repeated at weekly intervals for two or three weeks. Every night the patient should paint round the affected nail-fold with some antiseptic in spirit or acetone so that it will penetrate into the pocket; it is obvious that an ointment is useless for this purpose, though there is a stage, as mentioned below, where it may have a place. Every dermatologist has his own favourite antiseptic application, and in my opinion the most effective is:

Mercuric chloride	½%
Brilliant green	½%
Industrial spirit	99%

The disadvantage of this substance is its vivid colour, but many patients are quite prepared to put up with this if it does them good. A less conspicuous and nearly as effective antiseptic is tincture of merthiolate, and recently I have been using the following, which is colourless and is active against candida as well as ordinary bacteria: domiphen bromide ("bradosol") (1 in 500) in 75% spirit.

While the above treatment will cure many cases there is no doubt that better results are obtained if it is assisted by a course of superficial radiotherapy. Why this works so well it is difficult to say, as the doses given, 100–150 r, have no action on the invading bacteria; I believe the effect is produced largely by diminishing the inflammatory reaction so that the nail-fold returns to its normal anatomical state and also possibly by removing obstruction to the lymph flow by inflammatory products.

A striking example of the benefit of *x* rays was shown in the following remarkable case.

A girl aged 6 was brought to me with a history from 6 months old of recurrent septic lesions starting at the base of the nails as a red glossy swelling which frequently oozed pus. Every nail except that of the left little finger had been involved one or more times, though not necessarily all together. She had been thoroughly overhauled elsewhere and had had a tonsillectomy two years previously without benefit. The only relevant detail in the family history was a history of eczema in the father. All simple forms of treatment had had no effect, but lesions were said invariably to clear up after *x*-ray treatment. When I examined her she had typical perionychia of the right index and little fingers and the left thumb. There was no evidence of any abnormality such as epidermolysis bullosa. Bacterial investigation showed a *Staphylococcus aureus* sensitive to all antibiotics except penicillin. Careful investigation for septic foci, including *x*-ray examination of her sinuses, was negative. Ordinary treatment, including chlortetracycline ointment, produced no improvement, but after I had found out how much radiation she had had, I gave her three fractional doses at monthly intervals, and since then she has remained clear for six months. I have no explanation for this child's extraordinary susceptibility, but she is a witness to the remarkable effect of *x* rays.

When the pocket at the base of the nail has been made sterile and the swelling of the nail-fold has been flattened, it is important to prevent further reinfection before the nail-fold has become firmly adherent to the nail again. This can often be helped by applying "portex" plastic skin to the base of the nail so as to seal the space between the nail and the nail-fold. It will have to be reapplied every two or three days. An alternative, though less satisfactory, method is to apply an antiseptic ointment with a water-immiscible base such as soft paraffin—for example:

Ammoniated mercury	10 gr. (0.65 g.)
Soft paraffin	to 1 oz. (31 g.)

[not the ordinary *National Formulary* ointment, because this has a water-miscible base]

This ointment should be lightly massaged into the nail-fold so as to occlude the pocket. Finally, even when the nails are back to normal the patient must continue to take reasonable precautions, otherwise there is a considerable chance of a relapse. One useful measure is to apply regularly a waterproof barrier cream round all the nails before doing any wet work.

Summary

The incidence of chronic perionychia is reported and the aetiology discussed.

Curative and preventive measures are described.

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DIAGNOSIS AND TREATMENT OF PEMPHIGOID

REPORT ON 22 CASES

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Pemphigus has achieved a notoriety out of proportion to its incidence because it is one of the few fatal skin diseases. The label of pemphigus was at one time given to any chronic bullous eruption occurring in later life, but the whole conception of the disease has been altered by the observation of histological differences between the bullae formed in pemphigus and those of other blistering eruptions (Civatte, 1943). Once Civatte's histological method of diagnosis was confirmed (Rook and Whimster, 1950), it became possible to note differences between the clinical picture in pemphigus and the disease which had previously been grouped with it and which is now known as pemphigoid (Lever, 1953; Rook and Waddington, 1953; Church, 1953).

The differentiation is of more than academic importance, as the prognosis of the diseases differs. One of the most important differences is in the age groups affected; pemphigus vulgaris predominantly occurs in middle age, but pemphigoid is a disease of old age. With increasing longevity pemphigoid, like other diseases of old age, seems to be becoming more common. Recent advances in treatment of the disease with corticotrophin (A.C.T.H.) and cortisone have improved the prospects of recovery, but early recognition and treatment are important, since many patients become bedridden and die as the result of this rather than of their skin eruption.

Clinical Features

We describe below the clinical features of pemphigoid as they have been observed by us in 22 cases. We believe that in the great majority of cases a diagnosis of pemphigoid can be made on clinical grounds alone, and this can be confirmed histologically.

Most patients with pemphigoid are over 70; the oldest we have encountered was aged 89. They may be in good health at the time of onset, but a significant number, even when age is taken into consideration, suffer from some chronic illness which causes them to be bedridden. Malignant disease has been said to be an associated illness, but did not occur in our series of cases.

Pemphigoid commonly starts with a non-specific rash on the limbs that may be urticarial or, occasionally, eczematous.