is desirable. Cyclopropane or gas-and-oxygen is the anaesthetic of choice.

Technique.—The fracture is reduced by the Whitman manœuvre, and the feet are attached to the foot-pieces of an orthopaedic table by plaster-of-Paris. This step is essential to ensure stability for radiography. To depend on the human factor in holding the limb is giving a hostage to fortune, and one should not rely on fortune in a surgical operation. A Michel clip is placed over the head of the femur and another over the lowest limit of the fracture. These are verified by radiography, and a point two inches below the lower clip is chosen. A calibrated guide (the Hey Groves measure may be used instead of the calibrated guide if preferred) is passed anterior to the shaft and neck of the femur over this point. It will therefore enter the skin an inch distal to this. It is passed in the direction of the femoral head, and its angle to the horizontal is noted, the latter being a constant. A 4-inch incision is made and the lateral surface of the femur exposed. With a one-third-inch gouge a longitudinal furrow is made in the long axis of the femur, starting at the trochanteric end. This is done to prevent splintering, and, as the gouge is directed away from the fracture, splintering up into it cannot occur. The furrow should be one and a half inches long and just wide enough to admit the flanges of the nail but not the head. A Watson-Jones guide is now inserted into the bone and its position checked by antero-posterior and lateral radiographs. The gaping of the incision may have distorted the lateral position of the calibrated guide, hence the importance of noting the angle to the horizontal. If the radiographs show a satisfactory position the nail is inserted in the usual way, a 12 to 15 cm. one being used.

After-treatment.—The patient does active quadriceps exercises and knee movements from the second day. The sutures are removed on the tenth day and the patient is allowed up on crutches after three to four weeks. If the position of the nail is satisfactory, weight-bearing may be permitted after six weeks. The weight-bearing calliper which protects the entire limb below the fracture and throws a torsion strain on the fracture is vetoed.

Possible Criticisms

1. *Splintering.*—This is met by making the longitudinal furrow from above downwards. Occasionally slight splintering may occur. Even so, the nail will usually hold the fracture adequately.

2. *Fracture of Shaft below Site of Insertion of Nail.*—This has occurred in two patients, in each due to a fall. Both subsequent fractures united uneventfully.

3. *Recurrence of Deformity.*—External rotation will not occur, as the angle of the pin to the perpendicular is more vertical than that of the neck to the shaft, and consequently the nail cannot rotate. Adduction has occurred in three patients. This was due to the nail not being inserted far enough—a purely technical error.

4. It may be said that there is an area of pulping in the region of the great trochanter which will not hold the nail. This may occur, but if the nail has a hold of two inches in the upper fragment and two inches in the lower fragment, this should be enough to keep the area stable. In these patients, of course, early weight-bearing should not be permitted.

I had hoped to publish with this paper a complete summary of results, but a change in my status has rendered this impossible. In the two years before July, 1941, between 40 and 50 patients with trochanteric fractures were nailed, with good results in over 75%. It is admitted that this is an inadequate statistical statement.

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Dr. Adolf Meyer, who retired on Sept. 1 last from the Henry Phipps chair of psychiatry and the directorship of the Psychiatric Clinic of the Johns Hopkins Hospital, has been succeeded by Dr. John C. Whitehorn, since 1938 professor of psychiatry at the Medical School of Washington University, St. Louis.

A NEW METHOD OF CONTROLLING THE HEAD LOUSE

BY

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Mellanby (1941) has called attention to the high incidence of head lice, especially in girls, in large cities in England. Those who have had experience with children evacuated from cities or with young women in industry confirm his conclusions. Figures at our disposal accumulated at medical inspections indicate that in industrial areas in Britain the incidence in young women is about 30 to 50%.

The Problem

An essential point in the problem of control is that if the person lives among others who are infested it is of little use to cleanse the head, for it quickly becomes reinfested. Evidently what is needed is an insecticide which shall remain effective in the hair for as long as possible, so as to "proof" the individual; with such an insecticide one would have some hope of eliminating the insect from a large section of the community. If, on the other hand, a lousy person is admitted into clean surroundings (e.g., hospital or military service), all that is wanted is something that will destroy lice and also nits with certainty.

In treating a head it should be remembered that nearly all the unhatched eggs are close to the scalp, and that the lice must go to the skin for food. The insecticide must therefore cover the whole hairy scalp, but there is no need to saturate the hair at a distance from the head. In order to avoid an unpleasant appearance the volume of insecticide should be small.

Most of the substances commonly employed, such as paraffin, cresol solutions, sassafras, and alcohol, are volatile and therefore have no protective power. Moreover, it is doubtful whether they kill nits; and some of them, particularly paraffin, make the hair sticky and arouse opposition. As an admission of the ineffectiveness of these materials it is often recommended that after application the infested hair should be cut short or combed with a fine steel comb. We have ourselves recently tested both paraffin (kerosene) and phenol (1:40) on women on whom lice as well as eggs were found. In each case a bathing-cap was worn for one hour after application. The results were as follows:

	No. of Cases	Failures (i.e., Living Lice or Nits)
Paraffin	12	10 (83·3%)
Phenol	9	7 (77·7%)

An Improved Method

We find that the following insecticides have great advantages over any others with which we are acquainted: (1) 25% technical lauryl thiocyanate in a white oil; (2) 50% lethane 384 special, in similar oil; (3) derris cream. (For specifications of these substances see below.) For any of these three the dose is 0.5 to 2 drachms (about 2 to 8 c.cm.) a head, the lowest dose sufficing for a child with short hair, the highest for a woman with long thick hair. The volume recommended is approximately that which people who apply brilliantine or hair oil generally use, so that the result is not unsightly, except on very fuzzy or very fair hair.

In applying these materials the hair should be parted by one hand and the liquid or cream put on the scalp itself with a teaspoon or pipette held in the other hand. This should be done on eight spots, four on each side; the material is then distributed by massaging with the fingers. It should not be distributed by combing, for that tends to draw the insecticide away from the scalp. The patient is instructed not to wash the head for ten days.

Advantages of the Method

1. The practical experiments are summarized in Table I. Some of the work was done by several different lady medical officers (R.A.M.C.) working in depots which admit girls into

one of the uniformed Government Services. These ladies, whose careful help we acknowledge, did not know what drug they were using or in what concentration, so that their results are unprejudiced. On the other hand, they had many other things to do, and we think that some of their results are open to question, one difficulty being the recognition of live unhatched nits.

TABLE I.—*Results of Trials of Head-Louse Insecticides*

Experimental Subjects	Insecticide	No. of Cases	Failures (%)
Recruits to Service "A" ..	25% lauryl thiocyanate	55	1·8
*Mediterranean evacuees ..	" " "	45	8·9
*Recruits to Service "B" ..	" " "	51	7·8
* " " " " ..	10% " "	18	39·0
* " " " "A" ..	4% " "	20	60·0
" " " "A" ..	50% lethane special	26	7·8
*Mediterranean evacuees ..	" "	13	15·4
* " " ..	Derris cream (1% rotenone)	12	8·3
Recruits to Service "A" ..	" " "	35	0
" " " " ..	Thin derris cream (1% rotenone)	187	1·1
" " " " ..	Thin derris cream (0·5% rotenone)	84	7·1

* These observations were made either by one of us, or by Miss I. Ledingham or Mr. A. C. Harvey, working for us. We know that the head was actually infested at the time the drug was put on (and many were specially chosen, as being very verminous), and a long and careful search on several days, up to the tenth, was made subsequently for live nits. For these reasons the results marked by asterisks are the most reliable.

Table I shows that the three drugs, in the proportions recommended, are highly successful; failures *on those going into a clean environment* being generally under 2% and always under 10%. It also shows that if the concentrations of drug are reduced a considerable proportion of failures occur. The word "failure" is to be understood as meaning "incomplete kill," and if even only one live louse or egg is found up to the tenth day the case is recorded as a failure.

2. We know from laboratory experiments that all these three materials (in the dose and concentration stated above) remain effective on the hair for 8 to 9 days, provided the head is not washed; this is easily shown by taking hair clippings from a treated head at intervals, and putting lice to live on them in a rearing-box. The loss of activity after 8 or 9 days is believed to be due to insecticide rubbing off on the pillow, not to chemical change. The fact that with a single application one can "proof" a head for a period is likely to be of great value in civil life. Moreover, if the drug is not efficiently applied and a few eggs escape, the larvae hatching from them will almost certainly be killed as they move about the scalp.

3. Another advantage of these drugs is that small volumes are used, so that the hair does not appear to be very oily or greasy. We suggest that the thiocyanates might be introduced to the public as "medicated hair oil," and the derris cream as "medicated hair cream." We believe that under such names they would be very acceptable. Moreover, doctors and nurses (some of whom have had long experience of combing, oiling, and hair-clipping) comment favourably on the ease and convenience of the method. Several of the doctors who helped with the experiments have written and asked for further supplies and have passed the information to their friends.

The cost of the drugs is very low. A recent retail quotation for lethane special was 35s. per imperial gallon. This is enough for 2,200 heads, at a cost of under one-fifth of a penny a head. The cost of lauryl thiocyanate is rather higher. We have no information of the cost of the derris cream.

Objections and Disadvantages

1. The two thiocyanates (and to some extent the derris cream) have slight but disagreeable odours, easily masked by the addition of 2% of oil of citronella or oil of bay, etc. We have, however, often used them on our own heads without essential oils and without arousing comment from our colleagues or families.

2. The question of possible danger to man has been carefully gone into. It is certainly true that thiocyanates and emulsions containing rotenone may under certain circumstances cause dermatitis if applied to the bare skin of some individuals. In head application most of the drug is taken up by the hair, so that the dose actually on the skin is small and, in our experience, harmless. For a full study of the toxicity of these thiocyanates to mammals see Cameron, Doniger, and Hughes (1939). We admit that we use a considerably higher concentration (25%) than these authors regard as safe, mainly in order to prolong the period during which the drug remains effective in the hair. After preliminary experiments on ourselves and our colleagues we have applied this concentration to about 200 heads without any ill effects or discomfort. As to our derris cream, we have applied it in all to 250 heads and patch-tested it on the arms of 90 volunteers, and seen no symptoms of any sort. Prof. G. R. Cameron has been so good as to test it by putting very large quantities on the hair of rabbits and goats: he reports that a month later the animals were in good health. Emulsions of rotenone, or other substances derived from derris, may cause dermatitis, especially on the skin of the scrotum, and we do not recommend the derris cream or the thiocyanates for that part of the body. It is probable that there may be individuals (we have found none) who are particularly sensitive to one or other of these drugs, even if correctly applied to the scalp, just as others are intolerant of quinine, aspirin, etc.

3. We recommend that the head should not be washed for 7 to 10 days, and exception has been taken to this on the ground that one ought to emphasize the importance of cleanliness. None the less, in our experience it is better to leave the head unwashed for this period, probably because of the difficulty of ensuring that all parts of the scalp are treated. The alternative is to use a larger bulk of insecticide, which can be relied on to touch all parts but which looks very oily and unpleasant. With the derris cream it is probably even more important not to wash it off, because its effect on the louse is slow and because it probably does not kill nits.

A Field Experiment

One particular experiment, of which the facts are given in Table I, is worth fuller description, because the conditions were so difficult. There are certain hostels in London full of refugees from a Mediterranean country. The children and the mothers are heavily infested with head lice, and appear to regard these parasites as normal. The mothers refuse to be touched, and the nurses have been cleaning up the children's heads for many months without making any lasting impression. Miss I. Ledingham was good enough to give up nearly two months to treating these children and following them up. The work was rendered especially difficult by the lack of co-operation from the children's parents. Many washed off the insecticide at once and others prevented the children going for reinspection; indeed, one mother was actually caught reinfesting her child's head with fresh lice "for good luck." For all these reasons it was possible to follow up only a portion of the hundred-odd cases treated; the results available are set out in Table II. Considering the great possibilities of rapid reinfestation, these figures are very satisfactory.

TABLE II.—*Reinfestation after Treatment (Mediterranean Evacuees)*

Insecticide	Failures at Different Periods after Treatment (%)			
	3–7 Days	10–14 Days	16–22 Days	25–32 Days
25% lauryl thiocyanate in white oil	4·4 (68)	8·9 (45)	25·8 (31)	33·3 (15)
10% " " "	0 (19)	37·5 (13)	—	—

Figures in brackets are the number of cases inspected in different periods.

Specifications

The specifications of the above drugs are as follows:

Lauryl Thiocyanate (dodecyl thiocyanate; lauryl rhodanate).—This substance is made only by Messrs. du Pont de Nemours at Wilmington, Delaware, U.S.A., and is obtainable in Britain through Imperial Chemical Industries, Ltd. The quality available is "technical," and is marketed in America as "lorol rhodanate." This technical grade contains 60% lauryl thiocyanate and 40% of certain homologues, some of which would be harmful to man if considerable proportions were present. This risk is greatly reduced by specifying that the thiocyanate was manufactured from lauryl alcohol which began to distil at or above 236° C. (atmospheric pressure) and of which 95% distilled below 319° C. The white oil which we have used as a diluent is a high-boiling paraffin (I.B.P. 325° C.), with a very low aromatic content, sold by the Shell Company as P31. We have reason for thinking that any refined oil of this type would be suitable.

Lethane 384 Special (12.5% N-butyl carbitol thiocyanate; 37.5% beta-thiocyanoethyl laurate; 50% refined paraffin).—Produced by Messrs. Rohm and Haas of Philadelphia, U.S.A., and obtainable in Britain through Messrs. C. Lennig, Windsor House, Victoria Street, London, S.W.1. It is to be noted that the material is sold in 50% dilution. We dilute it a further 50%, giving a final 25% concentration of the effective drugs. We have used the same oil as already mentioned.

Derris Cream.—This is made up for us by Messrs. Cooper, McDougall and Robertson of Berkhamsted. The cream we have used has been a solution of derris extract in castor oil, the whole emulsified suitably to make a cream containing 1% of rotenone and 7% of derris extract. In our samples the emulsifying agent was lanette wax, but there are other similar materials which might be equally effective.

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Medical Memoranda

Epidemic Catarrhal Jaundice

Epidemics of catarrhal jaundice are by no means infrequent. In Price's *Text Book of Medicine* reference is made to outbreaks occurring in the West Riding of Yorkshire in 1930 and 1935. It is of interest to record a minor local outbreak in the same county in September and October, 1941. Twelve cases have been reported, including two that were only suspect (5 male and 7 female). Nine of them were between 2 and 16 years of age, one was 24, and two were in the forties.

One case dates back to September 15, two to September 30, eight started during the period October 2 to 13, and one did not begin until October 22. Three began with influenzal symptoms—i.e., feeling chilly and as if they had a rise of temperature—and nine, including the two suspects, began with gastric symptoms. Two cases occurred in each of two families, and one suspect, a child aged 2, shared a bed with his aunt, aged 13, who was affected. Of the nine different families concerned, five were at the same end of the town.

Possible Modes of Spread.—The recognized modes are by the enteric route and by the nasopharyngeal route (droplet infection). In this series the nine different families obtained their milk from eight different milkmen, all producer-retailers in a small way. Some took all their meals at home, others dined at canteens; some included in their dietary those articles of food so often suspect—pies and sausages; others indignantly denied eating made-up foods. In short, there was no uniformity in school, place of worship, place of employment, milk supply, or diet. In favour of the disease being spread by "droplet infection" are: the occurrence of two cases in the same family on two occasions, a suspect and an actual case in relatives in another, and two girls from different families who had been playmates both contracting the complaint; in two other cases the parents stated that playmates had had jaundice, though these further cases did not come under medical care and were not investigated; and, perhaps the most interesting point of all, the very last case in the series was that of a rent collector who stated that in the course of his work he had been into several houses where cases of jaundice had recently occurred.

Recovery in all cases was uneventful, and opportunity for carrying out tests for hepatic efficiency did not arise. An unsuccessful attempt was made to obtain supplies of sulphaguanidine for clinical trial. In so far as any conclusion can be drawn from such a small series of cases, the balance of the evidence is in favour of "droplet infection" as the mode of spread.

My thanks are due to local practitioners for voluntarily notifying the above cases.

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Dr. Ralph I. Lloyd became president of the American Academy of Ophthalmology and Otolaryngology on January 1, and Dr. James A. Babbitt, emeritus professor of clinical otolaryngology in the University of Pennsylvania, took office as president-elect.

Reviews

MUIR'S PATHOLOGY

Textbook of Pathology. By Sir Robert Muir, M.A., M.D., Sc.D., LLD., F.R.S. Fifth edition. (Pp. 991; illustrated. 35s. net.) London: Edward Arnold and Co. 1941.

The fifth edition of Sir Robert Muir's classical *Textbook of Pathology* closely resembles its predecessor in content and arrangement, as well as in excellence of production. There are nevertheless numerous changes in the text incorporating advances in knowledge during the past five years. Among new subjects introduced are the study of experimental hypertension by Goldblatt and his followers, and regional ileitis; there are descriptions of two new tumours, glomangioma and adenolymphoma; and melanoma has been taken out of the section on sarcoma and placed in a separate category. The description of teratomata has been rewritten, with a reference to the bearing on this subject of Needham's work on organizers. The aetiology of cancer is dealt with more fully and incorporates a description of recent work on the hereditary factor in man and that of Bittner (whose name and Masugi's in the chapter on nephritis are misspelt) on the mode of transmission of susceptibility to breast cancer in mice. The description of Bright's disease has also been extensively rearranged and rewritten. Condensation elsewhere has so balanced these additions that the present volume is actually three pages shorter, in spite of containing twenty-eight more illustrations than the fourth edition.

It is a great achievement again to have brought this pre-eminent work fully abreast of recently acquired knowledge. Its great virtues are reliability as to fact, and authority of judgment in matters of controversy: for either the student or the more senior seeker after knowledge there is no sounder guide.

ABDOMINAL SURGERY

Operative Surgery: Including Anesthesia, Pre- and Post-operative Treatment, Principles of Surgical Technic, Blood Transfusion, and Abdominal Surgery. Edited by Frederic W. Bancroft, M.D., F.A.C.S. (Pp. 1,102; illustrated. 55s. net.) New York and London: D. Appleton-Century Company, Inc. 1941.

The rather long title of this book on operative surgery of the abdomen has at least the advantage of outlining the field it covers; presumably other volumes are to follow on other branches of operative surgery. The chief appeal of the present volume will be to the so-called (and sometimes maligned) general surgeon, a term rapidly coming to mean the abdominal surgeon who also maintains his interest in the science and art of surgery considered as a whole. True, the general surgeon may have particular interests or surgical hobbies outside the abdomen, but there his chief work lies, and for him this is an excellent modern guide-book. Under the editorship of the associate professor of clinical surgery in Columbia University, thirty-four authors have combined to produce it, and these include such well-known names as Alton Ochsner, who writes on appendicitis; Urban Maes, on the spleen; Mont. A. Reid, on surgical technique; F. W. Rankin, on the large bowel; Alfred Blalock on pre- and post-operative treatment; Rudolf Schindler, on gastroscopy; and A. O. Whipple, on the surgery of the biliary tract.

The book is divided into twenty sections, each consisting of several chapters, printed in attractive clear type and well illustrated by photographs and line drawings and with several coloured plates. Some idea of the scope of each section may be gathered from the introductory one on anaesthesia, which includes chapters on pre-anaesthetic medication, inhalational, rectal, intravenous, spinal, and regional anaesthesia, each written by a different author.