attachment, separation is more easily caused, and I have seen in one patient, who had previously had acute osteitis and necrosis of a small piece of the humerus, several attacks of pain and swelling of the bone brought on by any violent use of the muscles attached to the upper part of the affected bone. The patient was liable to these attacks for several years, and they caused the arm to swell to at least double its natural size, but they only occurred as a result of some considerable muscular strain, and slowly subsided when the arm was kept absolutely at rest.

In their less pronounced form I have seen cases of pain and tenderness with some swelling, which I have attributed to a separated periosteum, chiefly in the humerus and the femur, but the only cases where X ray pictures have been taken to confirm this diagnosis are the two I have detailed above. In one of them the swelling was so considerable that it had been diagnosed as a possible periosteal sarcoma.

Manchester-square, W.

A CASE OF POISONING BY TRAGOPOGON PRATENSE, OR GOAT'S BEARD.

BY FRED J. SMITH, M.D. LOND.

With Notes on the Chemistry by HUGH CANDY, B.SC., F.I.C.

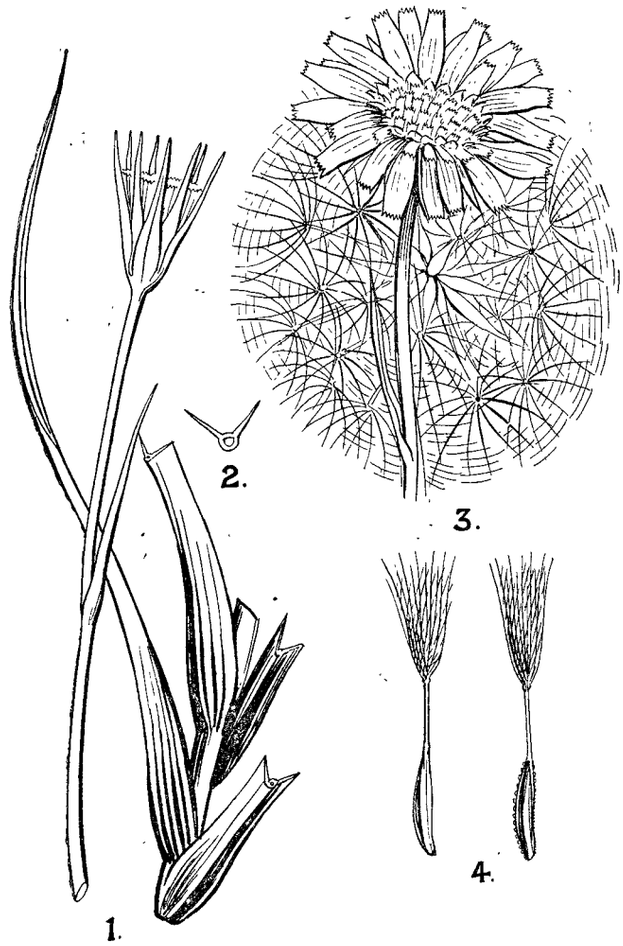
ON Monday, July 18th, 1910, the patient, a boy, aged 13 years, was admitted to the London Hospital in a semi-comatose state with the following history. On the previous Saturday afternoon, in company with some school fellows, he had been for a walk near Epping Forest and had partaken somewhat freely of what seem to be known locally as "gipsy nuts." He took a supply home with him and ate some more on Sunday. No ill-effects appear to have been caused either on the Saturday or during Sunday, for he went to bed on Sunday night apparently well, but was found on Monday morning semi-conscious in bed, looking very blue, and complaining of headache, but apparently there was no vomiting or other symptom of active irritant poisoning. (I believe that emetics were administered at home, and that they acted very successfully.) As he did not get better he was admitted to the hospital in the course of Monday afternoon, when I saw him at the request of Dr. R. Cecil Wall, under whose care he was admitted, and to whom I am indebted for permission to publish the case. When we saw the boy he was unconscious, cyanosed, with small inactive pupils, a small quick pulse, breathing very rapidly, with crepitations over both lungs. The temperature on admission was 101° F. Hot coffee and simple stimulants were administered, but in consideration of the long time that had elapsed since he had taken the deleterious material, the nature of which was quite unknown, and also fearing we might do more harm than good by very energetic treatment, we contented ourselves with one injection of strychnine (1/60 gr.) and atropine (1/100 gr.), the former as a general stimulant, and the latter in the hope that it might be antidotal, as the pupils were contracted. He passed several loose motions under him in bed, his respirations became of a Cheyne-Stokes type, his temperature gradually rose to 104°, and without showing any marked symptoms beyond those mentioned he died on Monday evening.

It was tolerably obvious that death was due to the "gipsy nuts." How many the boy had eaten is uncertain, but probably a good many, as he collected a pocketful after his feast when out for the walk, and of these he would seem to have eaten freely on Sunday. His mother brought some for us to examine. I only recognised them as the seeds of some composite plant and asked to be supplied with some other parts of it; these in a day or two were forthcoming when one, of course, at once saw that it was the common wild flower Tragopogon pratense, which can be found fairly abundantly about waste ground, rubbish heaps, &c.

The post-mortem examination was done on the next day. Its results were entirely negative, with the exception of a small patch of about the size of a penny of acute gastritis close to the œsophageal opening, and a few tiny hæmorrhages in the lungs, no doubt caused by respiratory distress and failure. As vomiting and purging had been rather severe I did not preserve any of the contents of the guts for analysis, though they were very carefully examined with the naked eye with negative results.

On turning to my Sowerby I find no mention of any poisonous property residing in the plant—in fact, it is there stated that the roots of this and its brother Tragopogon porrifolius are good to eat. As the plant is, however, so common I think the case ought to be published as a warning of the possible dangers of eating it.

As soon as I knew what plant it was that had caused the fatality I obtained some of the seeds for analysis by Mr. Hugh Candy, analyst to the hospital, whose report is appended.



1. The plant (much reduced). 2. Section of a leaf. 3. Flower and pappus (about hal f natural size). 4. The seeds "gipsy nuts" (about half natural size).

Notes on Examination of Seeds of Tragopogon Pratense for Presence of Alkaloids, by Mr. CANDY.

Of the seeds 100 grammes were ground in a mill, and the crushed product was repeatedly extracted with alcohol in presence of tartaric acid; the alcoholic extract was filtered, and the clear filtrate had a fine green colour; this filtrate was evaporated on the water bath to a soft residue which was of a deep brown colour. This residue was dissolved in hot distilled water as far as possible and the solution was filtered. The aqueous filtrate was made up to 200 c.c. with distilled water and then divided into two equal portions, S_1 and S_2, which were examined differently as follows:—

S_1. 100 c.c. were purified by the usual process with lead acetate, and the final lead-free filtrate was tested for alkaloids with the usual reagents. A precipitate was only obtained with phospho-molybdic acid.

S_2. The other 100 c.c. were successively extracted with (1) petroleum ether, (2) benzene, and (3) chloroform, first in acid solution and afterwards in ammoniacal solution. The last alkaline liquid was finally extracted with (4) amyl alcohol. In this way seven extracts were obtained, which were separately evaporated, and the residues so obtained were individually tested for alkaloids *with negative results.* The residue of S_2 from which these extracts had been obtained still gave the precipitate with phospho-molybdic acid.

Therefore, this precipitate is due to some other principle which is not an alkaloid proper, for it is not extracted by the ordinary alkaloid solvents and is not precipitated by I in KI, or Mayer's solution.

A portion of S_1 was also rendered alkaline with ammonia

and extracted with chloroform; this extract after evaporation was tested for alkaloids with negative results. The residue of S_1, however, still gave the precipitate with phosphomolybdic acid.

Harley-street, W.

A RECORD OF 90 DIPHTHERIA CARRIERS.

BY ANGUS G. MACDONALD, M.B., C.M. EDIN., D.P.H. VICT.,

LATE BACTERIOLOGIST TO BOROUGH OF CREWE AND ASSISTANT TO MEDICAL OFFICER OF HEALTH OF CREWE.

As in typhoid fever, so in diphtheria, the carrier must be regarded as an important factor in the spread of disease.

The following tables are the result of an analysis of the findings of a bacteriological investigation of diphtheria in the borough of Crewe during a period of six months—March to September, 1910. The corporation of Crewe have been generous in supporting the carrying out of the investigation; and Dr. G. Granville Buckley, medical officer of health of the borough, has given his kind permission to use the records.

I shall be gratified if my criticism of the results should be accepted by my colleagues as a contribution towards the study of diphtheria, especially as regards the prevention of its spread. The term "carrier" or "positive contact" here used applies to persons who on examination were found to harbour the bacillus of diphtheria. The situations usually examined for the bacillus were the throat and nose, and the only other situation where the bacillus was found in this investigation is the ear. By examination of the throat is meant careful swabbing of the tonsils and pharynx; and of the nose, the passage of a swab slowly and carefully in and out through one or other nostril, separate swabs being used for each nostril.

Examination was undertaken on account of contact with a notified case of diphtheria, and the "contacts" were roughly divided into "home contacts" and "school contacts." Home contacts include the members of the family of the notified person, and also of neighbours and friends with whom contact about home was suspected or suggested. School contacts include all those examined at school, or rarely at workplace, on account of their contact with a notified person. The scheme of swabbing had to be modified at various times to suit circumstances and with a view to getting the best results, and in the end the attempt was always made to make the swabbing as wholesale as possible. The people have aided the efforts of the health authorities with wonderful readiness, but in various quarters opposition naturally was met with, which tended to lessen the satisfactory nature of the results and probably retarded the stamping out of the disease.

In a further paper I hope to discuss the epidemic in all its bearings, but meanwhile shall limit criticism to the carrier problem.

For the sake of comparison and of giving an idea of the relative proportion of things I give in tabular form the number of notifications received during the six months under consideration, and also various figures representing the amount of "contact" work done. The tables speak for themselves, and I have drawn out no percentage estimates or averages for any of the figures, having poor opinion of the utility of doing so, as the amount of work done—the estimation of the number and nature of the contacts to be examined, and the persistency with which the examination is followed out—is so much a personal and also local matter that no comparison could well be instituted with the work of others.

In the table of contacts, again, the approximate duration of known infectivity is given, and no average is struck. It is evident that the known period of infectiveness gives little idea of the whole period of infectiveness, and that even the known period would vary in different hands according to the local conditions—the facility afforded by the people for re-examination and the strength of the public health staff. It is evident, also, that to strike an average of known duration of infectiveness between cases that are found infective for some few days, and others whose infectiveness continues over a period of months, would be of no practical utility.

TABLE I.—*Showing the Number of Cases Bacteriologically Examined during the Months March–August, 1910.*

1910.	Notified and suspected cases.	Contact cases.			For release from quarantine: Hospital and home cases and contacts.	Total cases examined.
		Home.	School.	Total.		
March ...	43	65	49	114	56	213
April ...	70	117	99	216	140	426
May ...	95	95	101	196	141	432
June ...	63	106	171	277	148	488
July ...	61	83	31	114	159	334
August ...	42	68	193	261	130	433
Totals ...	374	534	644	1178	774	2326

The above table shows the relative proportion of cases actually examined, and does not include subcultures or duplicates, except of examination for release from quarantine.

It will be seen that the number of notified and suspected cases in March is fewer than the number of notified cases as shown in Table II., while in the other months that number is considerably higher than the notified number. The reason is that at first all the notified cases were not bacteriologically examined as they were afterwards, nor until the work was in full swing was there the same assistance from the medical practitioners, teachers, and others in bringing to notice suspected cases. In the schools the teachers took up the work of observation with enthusiasm, and all the children brought under observation were swabbed and referred at once to their medical attendant for treatment, whatever the condition might be.

TABLE II.—*Showing the Number of Cases of Diphtheria Notified in each of the Six Months, March–August; the Number of Contacts Examined, and those found Positive.*

1910.	Number of notifications.	Number of contacts examined.			Number of contacts found positive.		
		Home.	School.	Total.	Home.	School.	Total.
March ...	49	65	49	114	13	7	20
April ...	31	117	99	216	15	3	18
May ...	25	95	101	196	10	3	13
June ...	27	106	171	277	11	10	21
July ...	15	83	31	114	10	5	15
August ...	10	68	193	261	3	0	3
Totals ...	157	534	644	1178	62	28	90

It may be observed in connexion with this table that the cases of diphtheria found as the result of bacteriological examination of notified cases are fewer than the notified cases by a small and varying percentage, being smaller when there is much diphtheria and greater when there is little.

The chief point brought out in Table II. is the proportion of contacts found positive to contacts examined, and the relative proportion of positive home contacts to school contacts. The number of school carriers is also unduly inflated by the inclusion of 12 cases who were included on suspicion, and whose after-examination led to the belief that the bacilli which were the cause of suspicion were after all not B. diphtheriæ. They had characters sufficient to justify temporary observation in the presence of an outbreak of diphtheria, and the temporary quarantine and suspension from school were little hardship and a measure of safety.

All school carriers were found to be intimately associated at play with other cases and carriers, and mere class-room proximity was found to be of little importance as a factor in spreading the disease. The evidence all goes to indicate the very intimate means necessary for the transmission of diphtheria from one individual to another. In the home the positive cases have been found in most number amongst those who are naturally in closest communication, and the same holds for playmates in the same street and at school. This fact is of great importance, and indicates how readily, by prompt bacteriological examination and detection of positive cases, the dissemination of the disease may be prevented.