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Cypress Pollinosis in South Africa

A STUDY OF SEASONAL HAY-FEVER AND ALLERGIC CONJUNCTIVITIS OCCURRING IN THE WINTER-SPRING PERIOD.

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EXPERIENCE over many years has shown that hay-fever commonly occurs in South Africa during the summer, and is associated mainly with grass pollens and to a lesser extent with the pollens of the composites.

The seasons in South Africa are broadly as follows:

Winter.	Spring	Summer.	Autumn.
June.	September.	December.	March.
July.	October.	January.	April.
August.	November.	February.	May.

Strictly seasonal hay-fever, where the condition is confined to the months December, January and February, is not frequently encountered. The grasses may commence to flower as early as October and continue to shed pollen until March, and thus "summer" hay-fever due to these factors generally occurs from late spring until early autumn.

Most garden composites flower in the late spring and early summer, but some species continue to flower through the summer and even into autumn. Amongst the commoner composites are asters, coreopsis, dahlias, marigolds, sunflowers, Namaqua and shasta daisies, and zinnias. True winter composites are far less common, the most frequent representative, in the Transvaal at any rate, being the calendula, which flowers in May, June and July. In addition, the veld composites, cosmos, khaki weed, etc., flower in the late summer and early autumn, whilst some species, e.g. *Senecio*, flower from spring to autumn.

From time to time cases of hay-fever have presented themselves during the winter and spring months with the same seasonal recurrence from year to year. These cases showed no clinical sensitivity to *Compositae* pollens, although in some instances reactions to them were obtained by skin test.

The explanation of the occurrence of winter-spring allergic manifestations remained obscure until systematic studies were made on the patients with the pollens of trees which have their flowering period from July to October. (See chart.)

THE COMMONER WINTER-SPRING FLOWERING TREES.

July.	August.	September.	October.
Acacia Species.			
Cypress.			
			Blue Gum.
			Pine.
			Poplar.
			Plane.

The trees which commence their flowering period towards the end of spring, although not suspected of being of etiological importance in the true winter-spring hay-fever

cases, were nevertheless investigated from this point of view and included oak, maple, privet, robinia, syringa, silver oak and pepper tree.

The patients studied were, as a routine, submitted to skin tests with the pollens of all the plants mentioned above, together with a variety of the commoner inhalant allergenic substances as shown below. The food sensitivity of the patients was not especially investigated.

INHALANT SUBSTANCES USED IN ROUTINE SKIN TESTS.

Pollens.

Grasses (mixed *Gramineae* species).
Composites (mixed *Compositae* species).
Khaki weed (*Tagetes minuta*).
Acacia (mixed *Acacia* species).
Pepper tree (*Schinus molle*).
Cypress (*Cupressus* species).
Blue gum (*Eucalyptus* species).
Privet (*Ligustrum japonicum*).
Plane (*Platanus acerifolia*).
Poplar (*Populus canescens*).
Oak (*Quercus robur*).
Maple (*Acer* species).
Syringa (*Melia azedara*).
Pine (*Pinus* species).
Silver oak (*Grevillea robusta*).
Cedar (*Cedrus deodara*).
Dombeya (*Dombeya rotundifolia*).
Robinia (*Robinia pseudoacacia*).
Stocks (*Matthiola incana*).
Icelandic poppy (*Papaver* species).

Animal Danders.

Cat hair.
Dog hair.
Sheep wool.

Cow hair.
Horse hair.
Rabbit hair.

Feathers.

Chicken feathers.
Goose feathers.

Miscellaneous.

House dust.
Orris root.
Tobacco.
Glue.

Kapok.
Silk.
Cotton.
Pyrethrum.

Cypress pollen was found to be the significant exciting factor in the cases of hay-fever studied, as well as in such cases of seasonal allergic conjunctivitis which came to notice. Some of the patients showed, in addition, more or less sensitivity by skin test to other inhalant substances which, however, were not associated with the strictly winter-spring seasonal incidence of their condition.

The cypress pollens used in the tests were those of *C. lusitanica* and *C. arizonica*. In the majority of the patients opportunity was taken to carry out comparative skin tests with these two specific pollens, but no significant difference in the reactions could be detected.

All tests were carried out by the "scratch" method with fresh pollen and confirmed by intradermal tests with the pollen extract.

There is very scant reference in the literature to cypress pollen sensitivity. The gymnosperms produce extraordinarily large quantities of very buoyant pollen, but few are quoted as having any capacity to induce hay-fever, with the exception of certain cedars (*Juniperus* species).

The Cypress Tree.

The Conifers constitute the largest group of living gymnosperms, comprising approximately 350 species. Two families—*Taxaceae* and *Pinaceae*—are recognised in this group. The *Taxaceae* include the podocarp and yew tribes. The *Pinaceae* include the *Abietinae* or fir tribe (pine, fir, larch, spruce, cedar, etc.) and the *Cupressinae* or cypress tribe (cypress, juniper, etc.).

The following are among the species of Conifers belonging to the order *Cupressaceae* which are indigenous to the South of Europe, Asia and North America:

C. sempervirens (Mediterranean or Italian cypress).

C. lawsonia (Port Orford or Lawson's cypress)—South Oregon and North California.

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- C. macrocarpa* (Monterey cypress)—California.
C. funebris (Weeping cypress)—North China.
C. nootkanensis (Nootka cypress or Alaska cedar).
C. goveniana (Californian cypress).
C. obtusa—Japan.
C. lusitanica (Mexican cypress).
C. arizonica (Arizona cypress).
C. torulosa (Indian incense cedar)—Himalayas to South China.

In South Africa various cypress species are found. The following details of their occurrence in this country have been kindly supplied by the Chief Forest Research Officer of the Union Department of Agriculture and Forestry.

1. *Cupressus sempervirens* var. *horizontalis*, Gord., and *C. sempervirens* var. *stricta*, Ait.

Probably the first species to be introduced to this country. Both forms are widely distributed in the interior as well as near the coast. The *stricta* variety is commonly planted in churchyards and favoured by many farmers in the Karroo and Orange Free State areas.

2. *Cupressus arizonica*, Greene.

It was first introduced in South Africa about forty years ago, and on account of its hardiness it is to-day probably the most widely planted cypress in this country. In the Karroo and Orange Free State and elsewhere it is mainly planted for hedges, shelter belts and as ornamental shade trees.

3. *Cupressus lusitanica*, Mill.

There are in this country fairly old (about eighty years old) individuals of this species. It has already been planted a good deal, and trees are to be found in many of our plantations and also scattered elsewhere about the country. It is useful for hedges, shelter belts and the production of timber.

4. *Cupressus macrocarpa*, Hartw.

A native of a very circumscribed locality on the coast of California at Monterey. This species has also been introduced a long time ago, and is now widely spread, having been a favourite tree for shelter hedges. It has also been planted to some extent for timber in the Western Province.

5. *Cupressus torulosa*, Don.

There are a few fairly old trees in this country (Grahamstown and Cape Town), but this species has up to 1920 not been planted extensively. Lately, however, it has been planted to a great extent on the high veld of the Transvaal for ornamental purposes and shelter belts. It is also a valuable timber tree and has been used as such in some of our plantations in the Transvaal and Orange Free State.

In addition to the above species, which are fairly common, a few other species of *Cupressus* are present in the form of small plots or single specimens in arboreta and botanical gardens, but they are not common and are now seldom propagated.

In Johannesburg, cypress trees occur in fair numbers, largely as hedges around homes or as garden trees. During the pollinating season—June to October—masses of pollen are shed into the atmosphere.

Too strict a limitation of the pollination period should not be inferred from the months just mentioned, as the period might commence somewhat earlier or extend somewhat later in the year, depending on the climatic conditions prevailing in different parts of South Africa.

It is felt that a brief description of the cases investigated would assist others in the diagnosis of cypress pollinosis. There can be little doubt that, although the condition is probably not common, it is certainly prevalent in the country, but has hitherto escaped recognition as a definite entity.

In the cases described below, a broad distinction is made between those showing predominantly hay-fever symptoms and others in which conjunctivitis, with or without associated hay-fever, was the significant allergic condition.

A few of the patients in each of these groups were treated by means of desensitisation with cypress pollen extract. The details of such treatment and the results obtained are given. Effective therapy by this method of specific desensitisation is regarded as confirmatory evidence of the existence of true cypress pollinosis.

CASES OF SEASONAL (WINTER-SPRING) HAY-FEVER.

Case 1.—Male, 40 years, medical practitioner, Johannesburg. Referred in September, 1941, for hay-fever. No family history of allergy, but patient's elder son suffered from urticaria as a baby.

First attack of hay-fever in 1929 in Johannesburg. The symptoms were usually at their height in September. Symptoms were typical of hay-fever, with sneezing and running nose or blocked nose, which commenced on rising in the morning and continued throughout the day.

Skin tests showed a marked sensitivity to cypress pollen and to house dust, with only slight reactions to blue-gum pollen and chicken feathers. A clinical sensitivity to Dettol and allied disinfectants was also noted.

Desensitisation: Therapeutic pre-seasonal desensitisation with cypress pollen extract was commenced in February, 1943. Almost complete freedom from winter-spring hay-fever followed in that year. In 1944 the patient overlooked the necessity for further pre-seasonal desensitisation. Marked seasonal hay-fever recommenced in July and continued throughout the season.

Case 2.—Female, 26 years, housewife, Johannesburg. Referred in December, 1942, for hay-fever. Patient's mother is a hay-fever sufferer; her 3-year-old daughter has asthma and sister's 4-year son urticaria. The first attack occurred in the period July to October, 1932. In subsequent years the condition recurred in the same period, with the peak symptoms in August. These seasonal conditions had always been regarded as "bad colds". Typical hay-fever with sneezing and watery nasal secretion, particularly marked on rising in the morning.

Skin tests showed a marked sensitivity to cypress pollen, blue-gum pollen and the pollens of the *Compositae*. Moderate reactions were given by house dust and chicken and goose feathers, with but very slight reactions to the pollens of the grasses, pepper tree and khaki weed. A clinical sensitivity to barley was also noted.

It is interesting to observe that, although the patient was markedly skin-sensitive to the pollen of the *Compositae*, she is not affected by any member of this group and handles the flowers with impunity.

In this case the question of the seasonal attacks being associated with the pollens of blue-gum, to which the patient was found skin-sensitive, had to be considered. Blue-gum, however, continues to flower until January, whereas the patient's symptoms cease, as a rule, in October.

Case 3.—Male, 32 years, administrative work, Bethlehem, Orange Free State. Referred in July, 1943, for hay-fever. No family history of allergy, but the patient's 4-year-old child suffers from urticaria. First attack commenced in July, 1942, in Bethlehem. In subsequent years the seasonal attacks recurred in the period July to September. Typical hay-fever symptoms with sneezing, running nose, irritation of eyes and headaches, which commence on rising in the morning and continue throughout the day. Sleep not interfered with. On arrival from England in 1937, where he had had no allergic trouble of any kind, he proceeded to Basutoland, where he resided until 1940. Although cypress trees were plentiful there, he remained symptom-free. He then moved to Bethlehem, where cypress trees were also abundant. His hay-fever symptoms commenced in July, 1942, and recurred in the following winter-spring season of 1943. The patient returned to Basutoland, when his symptoms again appeared in the winter-spring period of 1944. It will be observed that some five years of contact with cypress trees elapsed before cypress pollen sensitisation became manifest.

Skin tests showed a marked sensitivity to cypress pollen, a moderate reaction to khaki weed and a very slight reaction to acacia pollen.

Case 4.—Male, Bethlehem, Orange Free State, referred (by correspondence) in July, 1943, for hay-fever. The family history of allergy unknown. Has suffered from winter-spring hay-fever since puberty. Typical hay-fever symptoms commenced each year in August. The patient himself recognised that the attacks occurred when the cypress trees were flowering in August. Patient is normally unaffected by horses, but during his hay-fever season proximity to horses exacerbated his symptoms.

No report of skin tests is available in this case.

Case 5.—Female, 36 years, housewife, Ermelo, Transvaal. Referred (by correspondence) in July, 1943, for hay-fever. No family history of allergy. Patient has had seasonal hay-fever attacks from mid-June to the end of August for the last twenty years. She remained free only for some years during residence in Cape Town.

Symptoms commence with itching at the back of throat and in nostrils, followed by continuous sneezing and some irritation and watering of the eyes.

Skin tests revealed a marked sensitivity to cypress pollen, with no reaction to any other inhalant tested.

Case 6.—Boy, 8 years, scholar, Burghersdorp, Cape Province. Referred (by correspondence) in September, 1943, for hay-fever. His mother's father and sister are both asthma sufferers. The first attack occurred in August, 1941. The symptoms appear in the period August to October, and consist of sneezing, blocked nose and watering of the eyes.

In the vicinity of the patient's home there are a large number of cypress trees, which commence flowering in August. It will be observed that there had been some six years' contact with cypress trees, since the child's birth, before symptoms appeared.

Skin tests showed a marked sensitivity to cypress pollen. Other skin tests were not done in this case.

Case 7.—Female, 36 years, housewife, Hanover, Cape Province. Referred (by correspondence) in September, 1943, for hay-fever. Her father's sister is an asthma sufferer and two of her three children have allergic skin conditions. The patient has had relatively slight sneezing attacks for a number of years past, especially in the spring. The hay-fever attacks became of significance in August, 1943. The period of symptoms is August to early October. Typical hay-fever attacks with sneezing, blocked nose, watering eyes, and sore throat. Sometimes there is an associated swelling of the lips. Symptoms commence as soon as patient rises in the morning, particularly on windy days, and worse when she is in the neighbourhood of cypress trees, of which there are large numbers in her district.

Skin tests showed a marked sensitivity to cypress pollen. Other tests were not done in this case.

Case 8.—Male, 73 years, retired, Ermelo, Transvaal. Referred (by correspondence) in September, 1943, for hay-fever. Brother suffers from occasional attacks of hay-fever. The condition commenced during 1931. For eight years the seasonal symptoms, which are most severe from June to August, were regarded as "bad colds". The patient, in addition, complained of mild hay-fever throughout the year.

The symptoms consist of sneezing and running nose, as well as irritation and watering of eyes, with some photophobia. There is some coughing and occasional itching of the scalp. The attacks, which last a few hours to a number of days, generally commence in the early morning or just before sunset, but sometimes also during the night. The attacks are worse after strong winds, and generally occur when the patient is in the proximity of cypress trees.

The patient has since 1919 been in contact with cypress trees, of which there are at present large numbers near his home. In this case a period of about twelve years of contact with cypress trees elapsed before seasonal symptoms became manifest.

Skin tests showed a marked sensitivity to cypress pollen, but there was no reaction to other inhalant substances used in testing.

Case 9.—Male, 37 years, medical practitioner, Johannesburg. Referred June, 1944, for hay-fever. Patient's mother and brother are both hay-fever sufferers. The condition commenced in June, 1942, and the period of symptoms is June to October. Typical hay-fever attacks are almost continuous in the season, with sneezing and irritation and watering of eyes and nose, particularly in the afternoon. The condition cleared up temporarily whilst on a visit to the coast during August, but on return to Johannesburg attacks of a milder nature recurred and continued until early in October.

There are numerous cypress trees in the neighbourhood of patient's home.

Skin tests showed a marked sensitivity to cypress pollen, with a mild sensitivity to plane-tree pollen. The patient is also clinically sensitive to the ingestion of milk and eggs. During skin testing with cypress pollen the nose became

blocked and itching and watering nose commenced, followed after a few hours by considerable local and general reactions.

Desensitisation: Desensitisation was commenced immediately diagnosis of the condition was established in June, 1944. Almost complete freedom from winter-spring hay-fever resulted in that year.

Case 10.—Male, 58 years, administrative work, Zastron, Transvaal. Referred (by correspondence) in August, 1944, for hay-fever. No family history of allergy. The condition first occurred in July, 1939, and symptoms in subsequent years appeared in the period July to September. Typical hay-fever symptoms, with sneezing and blocked nose, generally commencing in the morning. In addition there is frequently itching of lower part of trunk and the legs. Relief is as a rule obtained about midday, with no symptoms at night.

In the patient's garden there are numerous cypress trees which flower from July to September.

Skin test showed a marked sensitivity to cypress pollen. No other skin tests were done in this case.

CASES OF SEASONAL (WINTER-SPRING) ALLERGIC CONJUNCTIVITIS WITH OR WITHOUT ASSOCIATED HAY-FEVER.

Case 11.—Male, 32 years, clerk, Johannesburg, Transvaal. Referred in July, 1942, for marked allergic conjunctivitis with associated hay-fever. No family history of allergy. The first attack, which lasted six weeks, commenced in July, 1938, fifteen months after moving into his present home, which is within 100 yards of numerous cypress trees. In subsequent years attacks occurred from the end of June until September. The condition commences like a severe cold in the head, with spasms of sneezing, itching and running of nose, and irritation of eyes. The conjunctivae become red and there is a stringy discharge from the eyes, with a sensation of grit beneath the eyelids. The condition is generally worse at night. Patient had regarded the eye condition as the serious element, and on this account had consulted various medical men without, however, obtaining seasonal relief. He then consulted Dr. A. Jokl, ophthalmic surgeon, Johannesburg, who referred the patient for allergic investigation. Dr. Jokl comments as follows: "I saw the patient for the first time on July 28, 1941. He was complaining of itchy eyes and a certain amount of discharge. Clinically I only found an ordinary conjunctivitis, which I treated with silver nitrate. As his nose was affected as well, I referred him to a rhinologist, who treated his nose by plugging it with cotton-wool soaked in a solution of cocaine and adrenalin. The condition lasted until 19th August, when the patient declared himself perfectly well."

On the 2nd of June, 1942, the patient returned with exactly the same complaint. Again I treated him with silver nitrate and a mixture of anilin dyes, without much result. I then referred the patient to Dr. Ordman, who found him sensitive to cypress pollen. On November 2, 1942, whilst the patient was symptom-free, I instilled a few drops of cypress pollen extract, prepared at the South African Institute for Medical Research, into the patient's right eye. A few minutes later the eye started to get red and the patient complained about itchiness of the eye and also a tickling feeling in his nose. After 20 to 25 minutes the eye started to get pale again, and in the afternoon there was no sign of any irritation. At 6 p.m. the same day the patient had an attack of watering of the nose and redness of the eye, which, however, had subsided by the next morning."

Skin tests showed a marked sensitivity to cypress pollen, with slight reactions only to goose feathers and house dust.

Desensitisation: Preseasonal therapeutic desensitisation was commenced in March, 1943. Forty-one injections were given to the patient over a period of four and a half months. There was marked alleviation of the symptoms in the following winter-spring period. At the close of the season the patient reported that, except for an occasional slight itching sensation in the eyes and some running of the nose, there were no symptoms comparable with those in the previous years. Preseasonal desensitisation was repeated in 1944: 17 injections were given during May and June of that year. Complete seasonal relief followed.

In September of 1944, while symptom-free, the patient had occasion to cut down a hedge, when he experienced a stuffy feeling in the nose, with slight watering of the eyes. He states: "Three years ago I would not have dared to under-

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take a job of this nature for fear of bringing on an attack of conjunctivitis." It is also interesting to observe that in inter-seasonal periods in the past, whenever this patient had occasion to clean out his garage, similar mild attacks were produced. It is suggested that in these operations cypress pollen dust which had accumulated during the season had been stirred up and inhaled.

Case 12.—Male, 20 years, medical student, Johannesburg. Referred in September, 1942, for allergic conjunctivitis with associated hay-fever. The patient's sister is a hay-fever sufferer and his paternal cousin has asthma. The symptoms are confined to the period June, July and August. The patient has suffered from nasal catarrh since 1929. Hay-fever attacks first became marked in June and July of 1938, and the symptoms recurred in the same period in subsequent years. The hay-fever symptoms are characterised by frequent paroxysms of sneezing, most marked on rising in the morning, but also present in the evening. The eyes become red and painful, with profuse watery discharge. There is an itchy feeling under the eyelids suggestive of irritation by sand granules. Photophobia is considerable and patient seeks relief in a dark room and wears dark glasses throughout the season. Reading and close work are difficult. He obtains some relief with ephedrine.

For the last 17 years the patient has lived in a house bordered by cypress trees on two sides. There was an interval of some thirteen years between close contact with cypress trees and specific allergic manifestations.

Skin tests showed a marked sensitivity to cypress pollen, with slight reactions only to the pollens of blue-gum, plane and maple trees.

Desensitisation: Preseasonal therapeutic desensitisation was commenced in March, 1943. Twenty-nine injections of cypress pollen extract were given over a period of three months. No injections were given during July, as the patient was out of town on vacation. Marked relief resulted in the following winter-spring season. The patient reported that he had suffered only very mild conjunctivitis. The irritation of the eyes was very slight, with complete absence of discharge from the eyes and sensation of grittiness under the eyelids. Very scanty sneezing occurred in the morning. In 1944 the patient's scientific interest was aroused, and he kindly co-operated in the experiment to omit preseasonal desensitisation for that year. The symptoms recurred in the following season, as in the previous years, although not quite to the same degree of severity. There was marked conjunctivitis and patient resumed the wearing of dark glasses and the taking of ephedrine. There was again considerable interference with his usual medical studies. The symptoms lasted throughout July and August, when the patient left for Durban.

Case 13.—Male, 30 years, bookkeeper, Johannesburg, Transvaal. Referred in July, 1943, for allergic conjunctivitis. His mother and maternal aunt are sufferers from asthma and hay-fever, and his brother is also an asthmatic. He had attacks of asthma in 1935 after an operation on the nose. Conjunctivitis first appeared in October, 1937, in Johannesburg. In subsequent years symptoms were particularly marked from September to early November. In 1943 the symptoms commenced towards the end of June. During the season irritation and inflammation of the eyes occur, with continuous discharge of white stringy matter. Patient is compelled to get up once or twice in the night to wash his eyes. He wears dark glasses in the season. Sometimes associated with the eye condition there is some nasal catarrh, which is mild during the day but increases in severity towards evening.

The patient later developed a slight eczema of the face, neck and penis, which was not necessarily coincident with the occurrence of the conjunctivitis. In the following year there was a marked and persistent eczema of the face, which is being investigated.

Skin tests revealed a marked sensitivity to the pollens of cypress, grasses and *Compositae*, a moderate sensitivity to khaki weed and pepper tree, and a slight sensitivity to blue-gum and acacia pollens and to house dust. It is to be observed that the conjunctivitis is confined to the winter-spring period in spite of his sensitivity by skin test to the pollens of the grasses and composites.

Case 14.—Male, 50 years, administrative work, Johannesburg. Referred in August, 1943, for allergic conjunctivitis with associated hay-fever. No family history of allergy could

be elicited, except that his 22-year-old daughter had suffered from hay-fever for twelve years. The condition commenced in the winter-spring period of 1935. The symptoms occur principally from the end of June to early September, but are most marked in July. In addition, the patient suffers from a mild summer hay-fever and complains of blocked nose occasionally throughout the year.

The condition commences with blocking of one or both nostrils with watery nasal secretion. The eyes become red and painful with watering. Reading is difficult. The patient has worn dark glasses in the season for the last five years.

He had previously lived in a house surrounded by a macrocarpa hedge, and at his present home, where he has lived for the last six years, there are numerous cypress trees in the garden.

Skin tests showed a marked sensitivity to the pollens of cypress and grasses, as well as to house dust, with only a mild reaction to the pollens of privet, pepper tree and Composites.

COMMENT ON THE CASES.

A survey of the cases described above shows that cypress pollinosis was observed in 10 men (20-73 years), 3 women (26-36 years), and 1 boy of 8 years. Ten cases occurred in the Transvaal (7 in Johannesburg), 2 in the Orange Free State, and 2 in the Cape Province.

A study of the cases reveals the following significant facts:—

(1) The seasonal clinical allergic symptoms in the patients coincided with the pollinating period of cypress trees.

(2) Skin sensitivity tests showed in all of the cases a marked positive reaction to cypress pollen with or without skin sensitivity to other inhalant substances which, however, were not associated with the seasonal occurrence of the condition.

(3) Specific preseasonal desensitisation carried out with cypress pollen extract was successful in all the cases in which this procedure was carried out.

With regard to (3) above, it will have been observed that in two cases preseasonal desensitisation resulted in seasonal freedom from symptoms, but in a subsequent year, when such a specific preseasonal desensitisation was omitted, there was a return of the usual symptoms in the following winter-spring period.

It would appear from the four cases where it was possible fairly to judge, that many years of contact with cypress trees precede such specific allergic manifestations that may later occur.

It is of interest to note that skin tests carried out on the cypress-pollen-sensitive patients with the pollens of the related conifers, pine and cedar, were invariably negative.

Cypress-pollen sensitivity to any degree has not been detected in routine skin tests on large numbers of hay-fever and other allergic subjects investigated over a long series of years, with the exception of the fourteen cases described in this paper. It would thus appear that cypress-pollen skin sensitivity generally implies true clinical sensitivity to this pollen.

DIAGNOSIS.

It is not suggested that all cases of winter-spring hay-fever and conjunctivitis are necessarily only associated with the cypress-pollen sensitivity. It is, of course, quite possible that during this relatively cold period the use of feather quilts, woollen blankets, furs, etc., might give rise to a similar seasonal allergic symptomatology. Hence all cases of winter-spring hay-fever, conjunctivitis or other allergic manifestations of this seasonal character should be submitted to the usual routine skin tests with the pollens, animal danders, feathers, house dust, etc., in addition to cypress pollen.

TREATMENT.

In a case of cypress-pollen sensitivity preseasonal desensitisation against winter-spring hay-fever or allergic conjunctivitis is considered to be the ideal. Desensitisation should commence early in April and continue until about the middle of June, when cypress pollination is expected to begin.

Injections should be commenced with the weaker extracts and should be given at intervals of two to three days, gradually increasing the strength of the extracts used until, by the

beginning of the season, the patient is able to tolerate a high strength of the extract.

It may or may not be necessary then to continue injections throughout the season with a maintaining dose of the extract given at intervals of 10 to 14 days.

If the patient is first seen after seasonal symptoms have commenced, alleviation of the symptoms may be obtained with adrenaline or ephedrine. Seasonal desensitisation may, however, be carried out simultaneously. The doses should then be small and cautiously increased, bearing in mind that the patient is at that time inhaling cypress pollen almost continuously. It may be advisable to incorporate with each dose of extract injected a few minims of 1:1,000 adrenaline chloride to minimise reactions.

Preseasonal desensitisation should be carried out for two or three years. It remains to be seen whether the patient will by that time have been completely desensitised or whether such treatment should be continued in subsequent years.

SUMMARY.

1. Fourteen cases of winter-spring hay-fever and allergic conjunctivitis have been investigated and found to be associated with cypress-pollen sensitivity.

2. Cypress pollinosis is regarded as a true clinical entity.

3. The diagnosis and treatment of these cases are discussed.

ACKNOWLEDGMENTS.

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Abnormal Carbohydrate Metabolism in Burns.

This report is based on a study of 35 consecutive patients with burns admitted to the Boston City Hospital during a six-months period. The burns were treated locally with pressure dressings of dry sterile gauze, with no preliminary cleansing. Morphine sedation was given. Samples of venous blood were taken without stasis on admission and at frequent intervals thereafter. The blood-sugar was determined by two methods: that of Folin and a modified Benedict procedure. A patient was presumed to have hyperglycemia when the blood-sugar exceeded 130 mg. per 100 c.c. or the modified Benedict blood-sugar 100 mg. Insulin tolerance tests were made, lactic acid was determined, the carbon dioxide combining power, plasma proteins and chlorides were also measured, serum sodium was determined, prothrombin times were observed and cephalin flocculation tests were made. Shock was evaluated by the usual clinical criteria of fall in blood-pressure, high pulse-rate, cold clammy extremities and collapse. The results of these observations reveal a high incidence of hyperglycemia, lactic acidemia and a moderate reduction in the carbon dioxide combining power of the plasma. A high degree of correlation between these abnormalities of carbohydrate metabolism and the severity of the burn was found. The few glucose tolerance tests that were made indicate that in some severely burned patients with hyperglycemia there remains a considerable ability to metabolise added glucose. There was no evidence of liver damage in these patients as a result of the burn injury. In the few cases in which liver damage was found, it was present before the injury, being for the most part an alcoholic cirrhosis. The abnormalities in carbohydrate metabolism are not inconsistent with the presence of an increased glycogenolysis, together with a possible gluconeogenesis from protein. The authors believe that these observations suggest that additional glucose be given early to patients suffering with severe burns.

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(Article No. 2.)

Treatment of Compound Depressed Fractures of Skull, with a Review of 75 Cases

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IN European civilian practice, the incidence of compound brain injury is low. The cases discussed in this article received their injuries mainly as result of blows by heavy knobkerries or similar weapons.

The characteristic picture, therefore, presents a severe degree of comminution of bone with damage to underlying brain as a result of indriven bone spicules.

The seventy-five consecutive cases discussed here may be conveniently divided into three main groups.

Cases with—

1. Intact dura mater, 35 per cent.
2. Laceration of dura, 65 per cent.
3. Added complication of accessory nasal sinus involvement, 30 per cent.

In the series there were five deaths. One case, of comparatively mild character, died within a few hours after operation, under local anaesthesia, of acute congestive cardiac failure. One other, a Zulu male aged 70, was admitted after four days with extensive brain damage and herniation, together with established wound sepsis. Death occurred four weeks after operation as a result of encephalitis.

Total Cases.	No. of Deaths.	Encephalitis.	Brain Abscess.	Menigitis.	Cardiac Failure.	Per Cent.
75	5	2	1	1	1	6½

All these cases with exception of one already mentioned were operated on within the first 48 hours

INDICATIONS FOR OPERATION.

All compound depressed fractures of skull demand surgical intervention as early as possible. Delay is justified only in cases where complicating injuries are present, or the patient is deeply comatose and severe generalised brain damage is obvious.

PRE-OPERATIVE PROCEDURE.

Routine X-ray examination should be performed. Valuable information may be gained regarding the extent of bone involvement, the position and depth of indriven bone spicules in the brain substance, and the presence of foreign bodies.

Further, this procedure eliminates the necessity of pre-operative exploration of the wound. Consequently, the so-called "hospital infection", which is by no means negligible, is reduced to a minimum.

CHOICE OF ANÆSTHESIA.

By contrast with closed brain injuries, patients suffering from a compound lesion of severe degree do not, as a general rule, lose consciousness. This, no doubt, is due to the more localised type of brain damage. Restlessness and inability to co-operate are, however, common features. For this reason, Sodium Pentothal rather than local is often the anæsthetic of choice.

OPERATIVE PROCEDURE.

Ordinary compound linear fractures are treated by conservative operation unless there is evidence of compression by clot. Every case of compound depressed, rosette or gutter fracture should be explored, i.e., the dura should be exposed and examined.