

MEDICINE—BIOLOGY

Hay Fever Time

Since Most Hay Fever Is Due to Two Ragweeds,
Their Blooming Is a Signal for Sneezes

By DR. FRANK THONE

DO YOU have hay fever? Are you one of those luckless millions of Americans whose sneezes are now beginning to mount into the crashing crescendo that comes every year in late

If you are, or if you have hay fever victims among your kinsfolk or acquaintances, you have cause to indulge in the unconsoling reflection that as an average American citizen you helped to bring it upon yourself. You asked for it!

Connection between current American civilization and the spread of hay fever is set forth by Dr. R. P. Wodehouse, scientific director of the Arlington Chemical Company's hay fever laboratory at Yonkers, N. Y., in the magazine *Natural History*.

Most hay fever is due to the two commonest species of ragweed, together with a few equally disreputable relatives. In earlier days on this continent, ragweeds were not at all abundant. They could find place to grow only where floods had laid a layer of mud on the river-bottoms, or where a landslip or gully left a stretch of bare, raw earth. Ragweeds then went in as members of the first wave of pioneer vegetation; they could even fairly be counted as first-aid plants, initiating the process of healing up these wounds in the soil.

Weeds Grow Rank

But civilization has made the land of this continent very sick. In our eagerness to get all the money we can in the shortest possible time, we Americans have over-plowed, over-grazed, over-lumbered our heritage. We have almost skinned poor Mother Earth alive; she is covered with wounds of our making. And the ragweeds and other bearers of hay fever pollens have multiplied a million-fold. They grow thick and rank where they used to be but thin and scattered. Their hordes increase year by year, and with them the clouds of pollen they pour into the air. We are paying through the nose, in a painfully literal sense, for the way we have over-exploited America's land.

There are a number of species of

ragweeds, but only two of them figure really importantly in the mass production of sneezes and reddened eyes. They are known respectively as the tall or giant ragweed and the low or dwarf ragweed. The tall ragweed grows from three or four to 16 or 18 feet high; it is a stout, coarse, hairy plant, with its broad, rough leaves divided into three blunt lobes. The low ragweed seldom grows more than four feet high; its rank-smelling leaves are finely divided, somewhat like those of carrots.

Wind Carried

Both species produce immense quantities of pollen. They belong to that large and miscellaneous group of plants that are not visited by insects but depend on the wind to carry their pollen for them. Naturally, this wasteful, hit-or-miss method of pollination requires vastly more of the fertilizing dust than is needed by the more economical insect-pollinated plants.

Wind-borne pollens can be carried to great heights in the air and often travel long distances. Oren C. Durham, chief

botanist of the Abbott Laboratories in North Chicago, has made many airplane flights to study the vertical distribution of ragweed and other pollens. He has found the pestiferous sneeze-dusts in quantity at altitudes of 9,000 feet and above.

"Skyhook"

In collecting pollen during high-altitude flights, a device called colloquially a "skyhook" is used. The original skyhook was invented by Col. Lindbergh, for some scientists who wanted to comb the upper air for bacteria and the spores of fungi. It holds a small plate of glass, made sticky with glycerin or other appropriate chemical substance, and exposes it for any number of minutes the operator desires as the plane flies along. Then the glass slide is taken out for laboratory examination, and a fresh one inserted in its place.

Mr. Durham now uses an improved, streamlined skyhook, more convenient to operate than the original model. It attaches very easily to the sliding window at the side of the pilot's cabin in the modern airliners. It may be that future routine in airline duty will include taking samples of the micro-population of the air, just as present-day ocean liners regularly take echo-sound-



RAGWEED

Here are shown the two common varieties of ragweed. The giant kind does not belie its name; these towering weeds (left) are less than average height. If the young lady on the right were pollen sensitive, she wouldn't be sticking her nose into low ragweed this way.

ings of the bottom over which they are passing. In any case, Mr. Durham's studies are yielding scientifically valuable data on hay fever pollens and how they get about the country.

Pollen Census

Pollens down at the levels where most of us live and breathe and do our sneezing have also been made the subject of systematic study by Mr. Durham, with the cooperation of the Weather Bureau, the Works Progress Administration and other government agencies. Pollen-catching plates have been exposed in a number of cities at strategic points over the country during the hay fever season, and yearly "pollen censuses" obtained.

One thing that these urban pollen collections have emphatically established: Even the streets and buildings farthest from weedy fields and roadsides are by no means pollen-free. The light invisible dust can be carried for miles, to the very heart of the most desert metropolis.

Of course, cities do not necessarily depend on the country for their supply of hay fever pollens. They grow a great deal of their own. City dumps, neglected empty lots, the "jungles" among the railroad yards and river bottoms, even parks and playgrounds that are not well kept up, all offer ideal conditions for the growth of the ragweeds and their disreputable cousins and allies like cocklebur, marsh elder and Russian thistle.

Sporadic clean-ups, when weed gangs are sent out to scythe down unkempt vacant lots, as a rule leave untouched the heavier masses of ragweed on the dumps and along the railroad tracks. Only the poor and unimportant ever see these eyesores, so the city fathers can afford to neglect them and thus pare the budget a little. But the pollen clouds from the wrong side of the tracks can and do cause sneezes and misery on the porch of the Country Club.

Just scything down the pollen-bearing weeds is no cure for the evil, Dr. Wodehouse points out. Indeed, it may have just the opposite effect, resulting in a longer persistence of the ragweed pest. Annual plants like the ragweeds, that spring from seeds and die within a single growing season, ordinarily give way after a few years to longer-lived (perennial) plants. Left to themselves, ragweeds are eventually crowded out, the vegetational cycle ending either in a solid grass sod or a growth of bushes and young trees.

But this presupposes freedom from fresh disturbance or interference. If the



A SNEEZE

To the hay fever victim in a paroxysm of sneezing the world is rocked. This is the conception of an Abbott Laboratory artist.

place is mowed clean once or twice a season, the succession-plants are cut back with the ragweed. If fresh dirt is dumped in, or the existing ground level upset by the blade of a road-grader or the like, everything is set back to the Year One and the reign of the ragweed begins all over again. Better, says Dr. Wodehouse, to let the ragweed alone, unless you take definite steps at the same time to encourage the growth of the permanent vegetation that is to replace it.

Attractive Substitutes

There are all kinds of attractive perennials that might very appropriately be encouraged to grow along roadsides where now the ragweed reigns. They will bind the soil against erosion and in late summer make the highways gay with their bloom; wild sunflowers, purple coneflower, black-eyed Susan, wild asters, and all the goldenrods.

Against the superstition that goldenrod pollen causes hay fever all botanists rise up in indignant protest. Goldenrod pollen is heavy, sticky, relatively scanty, adapted to insect carriage, not borne on the wind to any distance. For one person caused to sneeze by goldenrod pollen there are tens of thousands whose noses are outraged by the pollen of the ragweeds and other wind-pollinated plants.

People who think that goldenrod causes their hay fever are usually guilty of the type of logical fallacy known as a *non sequitur*: They sneeze, they see goldenrod in bloom, they blame the conspicuous bright flower. And all the while, the real villain of the piece, ragweed, laughs in his inconspicuous green sleeve—and spews more irritating pollen into the air.

The same kind of fallacious thinking happens in spring, when other hay fever victims are suffering from the effects of grass pollens. It happens that roses are in bloom at the same time as these grasses, so that late spring hay fever is often falsely called rose fever. Roses are as little capable of making you sneeze as is goldenrod, but they get the blame nevertheless.

Hope For Future

For all the cheerless present, there is a good chance that the world of future years will gradually become a better place for hay fever-prone folks to live in.

First, more is known about hay fever and its related allergic phenomena. Doctors can make more accurate tests for your sensitivities, and pharmaceutical manufacturers can supply them with more effective pollen extracts and other curative and preventive materials. And the sneez-



SKYHOOK

Oren C. Durham with the improved streamlined "skyhook" used for collecting pollen grains and other microscopic objects at high altitudes.

ing public at large has become pretty well disillusioned about the quack and patent-medicine "cures" in which some of them once had faith—no small gain in itself, for it leaves the hay fever victim the more disposed to try more promising measures for relief.

Second advance is the development of really effective air filters for use in connection with air-conditioning systems for homes and apartments. Not all air-conditioning systems exclude pollens and road dust—which for some persons is as bad as pollen. However, some of them do, notably the types that run the air through oil-soaked glass wool, or some similar device. It has become possible for hay fever victims who used to flee to the mountains every summer to remain comfortably in the city, if they are willing to remain virtual prisoners in such air-conditioned apartments and offices. Such comfortable imprisonment can hardly be reckoned as real adversity.

Best of all, in the end, is the promise of abatement of the ragweed pest itself. We are becoming more conservation-conscious, and also more aware of possibilities of beauty along our highways. So we are taking active steps to check gullies in fields and pastures with permanent, perennial vegetation, and at the same time our highway authorities are beginning to landscape the roadsides in-

stead of merely keeping them smoothly barbered. Both these processes deprive ragweeds of some of their best homes.

At the same time, the natural revegetation of cut-over and burned-over forest areas is slowly driving out great masses of ragweed that moved in when the old-style, cut-clean-and-clear-out lumbermen went away and left smashed deserts behind them. It may be a long time before log-size trees grow in the cut-over lands, but mere thick stands of brush,

such as deer and grouse love to inhabit, are sufficient to suppress the ragweeds. Just the ordinary healing processes of nature, if left to themselves, will in time rehabilitate the one-time hay fever resorts of the old North Woods—and maybe add features attractive to sportsmen later in the season, as well.

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INVENTION

Rose From Ireland, Cheap Lens Method, Among Patents

AMONG the patents issued recently to inventors by the U. S. Patent Office are:

A new kind of hybrid tea rose from Ireland having vigorous growth and an abundance of white exhibition flowers "softened by a Martius Yellow glow at their bases." (Plant Patent No. 325)

A chemical means of stimulating the buds of deciduous trees to hasten blossoming. (No. 2,166,123)

Method of molding low-cost non-breakable spectacle lenses from thermoplastic transparent materials. (No. 2,166,215)

Methods of producing artificial silk in which finely divided foreign substances are put into the filaments and then partially removed to give a pitted surface having a dull finish. (Nos. 2,166,739-41)

Means of fortifying cereal products with minerals essential to a proper diet. (No. 2,166,797)

An electrical circuit that makes windows close automatically when it rains. (No. 2,166,481)

From Germany, a new type of pneumatic tire having a myriad of tiny interconnected cells which are inflated so that, when a puncture occurs, the air leaks from them slowly and gives a temporary auxiliary cushion. (No. 2,166,511)

A new kind of ice formed by the addition of a small amount of benzoic acid which imparts non-cracking characteristics to the ice. (No. 2,166,113)

New type bath tub in which a shower may be taken while in a sitting position. (No. 2,166,469)

Japanese method of making aluminum

alloys having better forging properties. (Nos. 2,166,495 and 2,166,496)

Airplane with folding wings. (No. 2,166,564)

Air conditioning system for automobiles. (No. 2,166,635)

Simple metal clamp device to be placed on automobile tires to hold ends of tire chains while they are being attached. (No. 2,166,869)

Among the design patents of the week was one for a tiny camera concealed in the bowl of a pipe. (No. 115,727)

Aircraft supercharged power plant with a radiator placed behind the engine inside the body of the plane with ducts leading air to the radiator for cooling action. (2,165,443)

Method of soil gas analysis for determining the contained hydrocarbons that will be useful in petroleum prospecting. (No. 2,165,440)

A starting system for sprint races so arranged that the starting gun cannot be fired unless all the contestants' hands are properly lined up on the mark. (No. 2,165,749)

New type of lawnmower having an enclosed horizontal cutting blade turned by power shaft mounted vertically. (No. 2,165,551)

Special system of weaving stockings to create "nonrun" hosiery. (No. 2,165,520)

A stereoscopic rangefinder with double telescope system. (No. 2,166,046)

A method of underwater riveting by explosive action. (No. 2,166,041)

An electric system of room heating by use of radiant panels. (No. 2,165,970)

A clock mechanism for automatically