pronounced ever observed by the bureau. October 24 was a day of considerable magnetic disturbance.

Magnetic disturbances, sun-spot activity and poor high-frequency radio transmission have hitherto been considered to go together in general, but with many puzzling exceptions. The present results may help to unscramble the relation, and the following hypothesis is offered. High-frequency radio transmission improves as general sun-spot activity increases (probably because of increased ultraviolet radiation), but some particular, relatively sudden eruptions on the sun have the reverse effect (impairing high-frequency radio transmission on the illuminated side of the globe) and also give rise to terrestrial magnetic disturbances. It appears that the relation between the sudden solar and radio disturbances is a simple one. The wide-spread daytime radio effect is approximately synchronous with the solar eruption, depending directly on the changed ionization produced in the ionosphere by the solar emanation. The magnetic disturbance, however, is a derived effect resulting from the currents flowing in the ionosphere as the charges therein redistribute themselves. Magnetic disturbances therefore appear an uncertain length of time after the causative solar disturbance, and it would be difficult to identify cause and effect. Such identification is possible, however, for the radio disturbances.

This is borne out by the second type of confirmation of the phenomenon, *viz.*, reports of optical observation of changes on the sun which occurred at the same times as the radio fadeout reported. In response to a request from Dr. Lyman J. Briggs, director of the National Bureau of Standards, to Dr. George E. Hale, Mt. Wilson Observatory, and through the courtesy of Dr. S. B. Nicholson, in charge of the Mt. Wilson solar observations, I have received a report made by R. S. Richardson of that institution. This report indicates that the spectrohelioscope showed sudden marked changes in form and intensity of a hydrogen flocculus within a few minutes of the time of each of the radio fadeouts of July 6 and August 30, and also showed a similar phenomenon on October 24. (No observations were made at the times of the March and May fadeouts.) Mr. Richardson's report says the August 30 and October 24 eruptions were unusual. Data are not available as to whether wide-spread radio fadeouts occurred at the times of other notable solar flocculi eruptions.

The synchronous radio fadeouts and visible solar eruptions, lasting only a few minutes, appear to be some sort of climax of a process occurring over a period of hours. The October 24 radio observations revealed the disturbed condition over such a longer period rather than the climactic sudden type of fadeout. It should be noted, by the way, that the direct correlation of solar and radio effects with which we are here concerned are daytime phenomena, *i.e.*, on the side of the globe illuminated by the sun. Night-time radio phenomena are far more variable and may be expected to correlate more particularly with terrestrial magnetic phenomena.

It is by no means proved, but it may be that solar flocculi eruptions (visible or not) are the usual cause of wide-spread daytime impairment of high-frequency radio transmission and also of at least some terrestrial magnetic disturbances. Even if only a small proportion of the effective eruptions should have a visible stage, certainly further study of such visible effects and comparison with ionosphere data obtained by radio means will be of value in the further elucidation of the causes of magnetic disturbances. The National Bureau of Standards and the Carnegie Institution are carrying on a limited program of continuous determination of ionosphere data by radio means, and are setting up equipment to do this in more thorough fashion. This gives new emphasis to Dr. Hale's proposals for continuous spectrohelioscopic observations.

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MIGRATION OF GRAY SQUIRRELS

AT the present time considerable amount of speculation is passing through the minds of the zoological world in an endeavor to solve the migration of gray squirrels. It is reported that a horde of these animals are migrating from New England to New York covering an area of 100 miles wide. Recently a number of dead squirrels were picked up on the shore of Gilboa aqueduct. Between Albany and the Rip Van Winkle Bridge 2,000 remains were found along the west shore of the Hudson River.

This migration is not the result of campers invading their habitat or being attacked by parasites, as some writers have postulated. The slaughter of hawks, owls and foxes under the guise of conservation has made it possible for the red squirrels to multiply to the extent of breaking up the balance of nature, thus creating living conditions which would lead to extermination if migration did not take place.

It is not generally known that a large percentage of gray squirrels are emasculated annually by the pugnacious reds. In years past the writer has shot and trapped alive a large number of gray squirrels and close observation showed 98 per cent. mutilation. The technique used by the red squirrel is simple but most efficacious. Contact is made by leaping from a limb of a tree, a distance of fifteen feet or more, making a perfect landing on the back of the unsuspecting gray engaged in digging seeds. With a quick body twist

the unfortunate victim is pinned on its side and in less than ten seconds emasculation is effected.

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FOREIGN JOURNALS IN THE USSR

IN the article on "The Fifteenth International Congress of Physiology: The Congress and Russian Physiology," printed in the issue of SCIENCE for September 13, I stated that our Russian colleagues in physiology are being, to some degree, intellectually starved, owing to their inability to buy foreign journals; and I appealed to their Government to help them by providing the "exchange" necessary to buy more. Here are some facts concerning the total number of copies of three British journals sent to the USSR and, for comparison, to the U. S. A.:

	USSR	U. S. A.
Journal of Physiology	27	241
Journal of Experimental Biology	7	130
Biochemical Journal	47	374

That the "exchange" is available is shown by the fact that the Government of the Soviet Union is spending a large sum of money in buying Professor Kapitza's apparatus from Cambridge University: a sum large enough to pay for 100 subscriptions to each of these journals for 15 years.

These figures show the situation rather clearly. In the USSR, it is frequently and loudly announced that the Government is far more concerned in helping science than is that of any other country; the net result, however, is that in the United States government and private effort together buy nine times as many English journals in physiology and its two allied sciences as does the Government of the USSR. If this fact can be brought to the attention of the authorities in the Soviet Union it may stimulate them to do better, and so considerable advantage may result to our colleagues there.

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MISTAKEN IDENTITY?

MY attention was recently called to a brief, center-page article in *Liberty* for November 16, 1935, on "Not one in a thousand knows, sometimes air is heavier than water," by E. G. Conklin. There is a cartoon of a mythical professor at a laboratory table, and I am wondering if the announced author of the article is also mythical. As I have never written or spoken a word on the subject discussed, I am taking this means of disclaiming any responsibility for the article. I do not know of, nor can I find in any of the biographical dictionaries any other E. G. Conklin than myself, and I have asked the editors of *Liberty* to inform me who the reputed author of this article is, but the editorial secretary writes in reply: "I am sorry that I can not give you the address of our Mr. E. G. Conklin, who is the author of 'Not One in a Thousand Knows.' But if you wish to send a letter to him in our care, I'll be glad to see that it is forwarded to him promptly. Strange enough, the author of this feature is also connected with one of our large universities."

E. G. CONKLIN

PRINCETON, N. J.

SPECIAL ARTICLES

A HIGHLY ACTIVE PRESSOR SUBSTANCE FROM CEREBRAL VENTRICULAR FLUID OF HUMAN BEINGS

PAGE[1] has reported that human blood, cerebrospinal and ascitic fluid yield extracts with alcohol which are vasopressor. They differed from other extracts by the fact that activity is dependent on the functional intactness of the central nervous system. Destruction of the central nervous system below the mid-brain abolishes their effectiveness in elevating arterial pressure in anesthetized cats.

Clinical observation of patients suffering from essential and malignant hypertension suggests that in some of them signs and symptoms occur simulating those following irritation of centers in the diencephalon. This "diencephalic syndrome" has been recently described by Page.[2] Search was therefore made to ascertain whether the fluid which bathed this portion of the brain contained substances which might stimulate it.

Ventricular fluid was secured at autopsy and alcoholic extracts prepared. After removal of the alcohol and precipitate they were injected intravenously into cats anesthetized with ethyl urethane.

Arterial pressure fell slightly and rose sharply to a high peak. Similar extracts prepared from plasma cause arterial pressure to rise more slowly, but the elevated pressure is maintained for much longer periods (10 to 30 minutes) (Fig. 1). Destruction of the central nervous system abolishes completely this action, in this manner resembling extracts of plasma. Removal of the adrenal glands one-half hour before injection does not abolish the extract's action, hence

[1] I. H. Page, *Jour. Exp. Med.*, 61: 67, 1935.

[2] I. H. Page, *Am. Jour. Med. Sci.*, 190: 9, 1935.