that this very power was what made the sun and the stars shine. How did the astronomers know this? About equally, I should say, from the work of the American astronomers, under the banner of our own great Henry Norris Russell of Princeton University, and from that of western European scientists, under the unchallenged leadership of the late Arthur Stanley Eddington of Cambridge University, England. Eddington is dead, but his former close associate, the brilliant Nobel prize winner in physics, P. A. M. Dirac, was recently refused entry into the United States. I do not believe that even under your interpretation he could be described as a "really bad egg." His knowledge, and that of others like him, is tremendously important to us. In any case, we should not be too reluctant to add a small dose of that kind of egg to our domestic diet.

I have been given the honor, and at the same time the responsibility, of serving as the president of the International Astronomical Union, an organization of scientists representing 35 different countries of the world. It was founded in 1919, largely through the efforts of the late George Ellery Hale, the man who built for America the 40-in. refracting telescope of the Yerkes Observatory and the 100-in. reflector at Mount Wilson, and who began the construction of the giant 200-in. telescope on Palomar Mountain. We are very anxious that our Union hold one of its next meetings in this country. But, rightly or wrongly, many foreign astronomers, some of whom have previously been refused entry into the United States, are afraid to apply. The refusal of a visa labels them as "red" or "pink" in their own countries.

This is not a partisan matter, and I should regret it if emotional issues, either for or against my proposal, should arise from it. My proposal is a simple one: that the Attorney General be requested to exercise the power granted to him under the present law to admit, for 2 or 3 weeks, all qualified astronomers to attend a congress to be held under the great domes of Palomar Mountain, Mount Wilson, and Lick Observatories. America is proud of these monuments of achievement by some of its greatest astronomers. The work done with these telescopes is nonsecret, basic research. The opportunity is ours to demonstrate to the world the strength of our science. We need your help and that of our Government to accomplish this.

OTTO STRUVE

Berkeley Astronomical Department, University of California, Berkeley

2 August 1954.

A Method for Controlling Pain of the Face and Jaws Caused by Tic Douloureux

A new method for controlling the chronic recurring face pain of tic douloureux that we have developed entails the partial or complete destruction of the nerve cells of the Gasserian ganglion by injection of boiling water into this sensitive nerve center from which the pain originates.

The injection is performed in the radiographic room under light pentothal anesthesia with the aid of a Franklin x-ray head stand. By repeated roentgenograms, the foramen ovale at the base of the skull is visualized, and a 3¾-in. spinal needle is inserted through it into the ganglion. The needle puncture is made through the skin of the cheek at a point 3 cm below the malar bone and between the ramus of the mandible and maxilla. At some point between 12 and 17 mm from the foraminal edge, blood tinged cerebrospinal fluid is obtained by jugular compression or syringe aspiration, which indicates that the needle has pierced the arachnoid reflection surrounding the ganglion and sensory root of the fifth cranial nerve and that it has been properly placed. Then 1 ml of boiling distilled water is injected. Under light anesthesia, there can be demonstrated by pinprick an area of diminished sensation on the face corresponding to the well-known anatomic distribution of the ganglion. Additional 1-ml injections of water produce a more profound loss of face sensation. It is possible to stop the pain without producing a major sensory loss by injection of smaller quantities of water.

Any analgesic effect produced is believed to be permanent, which is desirable since tic douloureux is incurable except by a major intracranial operation or destruction of the ganglion by alcohol. It is improbable that damage to the brain or other cranial nerves will result if no more than 1 ml of water is injected at any one time, since the water temperature is immediately lowered to a safe level the instant it is diluted by the intracranial cerebrospinal fluid.

This method has always produced a paralysis of the muscles of mastication, which may be detected on careful examination of the masseter and temporal muscles. It is believed that this is temporary and that the motor branch will regenerate.

The method makes possible the relief from the lifelong pain of tic douloureux without the hazards of a major operation or of alcohol injection, as has been necessary in the past. Since most of those suffering from this disorder are elderly persons in poor physical condition for an operation, the procedure can be used without the risks inherent in the other standard procedures required for permanent relief.

Fourteen cases of tic douloureux have been successfully relieved of their pain by this method, since the first case was so treated on 30 Oct. 1953, without a major complication. One case of cancer of the jaw has been relieved of pain by this procedure.

RUDOLPH JAEGER

Department of Neurosurgery, Jefferson Medical College, Philadelphia, Pennsylvania

18 May 1954.